

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF VIRGINIA  
ALEXANDRIA DIVISION

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UNITED STATES, et al., : Civil Action No.:  
: 1:23-cv-108  
Plaintiffs, :  
versus : Wednesday, September 11, 2024  
: Alexandria, Virginia  
GOOGLE LLC, : Day 3 a.m.  
: Pages 1-147  
Defendant. :  
-----x

The above-entitled bench trial was heard before the  
Honorable Leonie M. Brinkema, United States District Judge.  
This proceeding commenced at 8:59 a.m.

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COMPUTERIZED TRANSCRIPTION OF STENOGRAPHIC NOTES

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8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
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19  
20  
21  
22  
23  
24  
25

# TABLE OF CONTENTS

## WITNESSES

On behalf of the Plaintiffs:

BRAD BENDER

Direct examination by Mr. Freeman .....5  
Cross-examination by Ms. Rhee .....42  
Redirect examination by Mr. Freeman .....74

RAMAMOORTHY RAVI

Direct examination by Mr. Vernon .....91

## EXHIBITS

On behalf of the Plaintiff:  
Admitted

Number 587 .....28  
Number 1736 .....31  
Number 1814 pgs 742 to 750 (later modified) .42  
Number 1814 .....74  
Number 1780 .....93  
Number 551 .....104  
Number 542, Bates 335 .....119  
Number 1040 .....145

On behalf of the Defendant:  
Admitted

Number 1508 .....43  
Number 549 .....54  
Number 259 .....57  
Number 129 .....61  
Number 705 .....132  
Number 697 .....145

## MISCELLANY

Proceedings September 11, 2024 .....4  
Certificate of Court Reporter .....147

P R O C E E D I N G S

THE DEPUTY CLERK: Civil Action Number  
1:23-cv-108, United States of America, et al. versus Google  
LLC.

Will counsel please note their appearance for the  
record, first for the plaintiff.

MR. HARRISON: Good morning, Your Honor. Jonathan  
Harrison on behalf of the Virginia Attorney General's Office  
here representing the plaintiff states.

With me today is Elliott Dionisio from the  
California Attorney General's office.

THE COURT: Good morning. We've got you first  
today, that's good.

MS. WOOD: We decided it was their turn.

THE COURT: Yes.

MS. WOOD: Good morning, Your Honor. Julia Tarver  
Wood from the Department of Justice on behalf of plaintiffs.  
With me are my colleagues Aaron Teitelbaum, Michael Freeman,  
Dan Guarnera, Michael Wolin, and of course Mr. Mene from the  
U.S. Attorney's Office.

THE COURT: Good morning.

MS. RHEE: Good morning, Your Honor. Jeannie Rhee  
for Google. I think you know the usual cast of characters.  
But I also want to do note for the record Bryon Becker is  
joining me at counsel table today.

1 THE COURT: Good morning. And I think before we  
2 get started today, just recognition that today is  
3 September 11th. And some of you may know that the only  
4 trial of that case occurred in this very courtroom where  
5 you're sitting today. All right.

6 We'll now proceed with the case.

7 MR. FREEMAN: Plaintiffs would call Brad Bender.

8 THE DEPUTY CLERK: Can you raise your right hand.

9 Thereupon,

10 BRAD BENDER,  
11 having been called as a witness on behalf of the plaintiffs  
12 and having been first duly sworn by the Deputy Clerk, was  
13 examined and testified as follows:

14 (Time noted: 9:01 a.m.)

15 THE DEPUTY CLERK: Thank you.

16 MR. FREEMAN: Good morning, Your Honor. Michael  
17 Freeman.

18 May I proceed?

19 THE COURT: Yes, sir.

20 DIRECT EXAMINATION

21 BY MR. FREEMAN:

22 Q Good morning, Mr. Bender. We haven't met. My name is  
23 Michael Freeman. I work with the United States Department  
24 of Justice.

25 Good morning.

1 A Good morning.

2 Q Could you please state your name, spelling both your  
3 first and last name.

4 A My name is Brad Bender, B-R-A-D B-E-N-D-E-R.

5 Q I want to talk to you just very briefly about prior  
6 testimony in this case and a related case that you had  
7 previously given.

8 You were deposed in October of 2020; is that  
9 right?

10 A That sounds right.

11 Q Now, at the time you were still employed by Google?

12 A That's correct.

13 Q Now, at that deposition you were represented by counsel  
14 for you and Google; is that right?

15 A That's correct. I was represented by Google in-house  
16 counsel as well as outside counsel for Google.

17 Q And then much more recently in June of this year, 2024,  
18 you were also deposed about Google's ad techs in the MDL; is  
19 that right?

20 A That's correct.

21 Q And you were represented by counsel at that deposition  
22 as well?

23 A That's correct.

24 Q And again, that was counsel for Google and yourself;  
25 right?

1 A That's correct.

2 Q At that deposition in June of 2024, you were no longer  
3 employed at Google?

4 A That's correct.

5 Q Prior to your June 2024 deposition, did you meet with  
6 Google's counsel prior to prepare for that deposition?

7 A I would have, you know, met with both the outside  
8 counsel and Google counsel, yes.

9 Q Just so we're clear about when you say Google's outside  
10 counsel, you mean just like a private law firm still  
11 representing Google; right?

12 A That's correct, yeah.

13 Q Okay. Do you hold Google stock?

14 A I do.

15 Q And is the estimated value at least over \$1 million?

16 A That's fair.

17 MR. FREEMAN: Your Honor, at this time we seek  
18 permission pursuant to Rule 611(c) to proceed with leading  
19 questions as this witness has identified with the adverse  
20 party, that being Google.

21 THE COURT: Any objection?

22 MS. RHEE: No, Your Honor.

23 THE COURT: I don't mind telling counsel you can  
24 do that. I've always distrusted testimony that comes in in  
25 response to leading questions so be careful.

1 MR. FREEMAN: Understood, Your Honor. Thank you.

2 THE COURT: All right.

3 BY MR. FREEMAN:

4 Q All right. So I'd like to start with some of just your  
5 professional background, which we can run through fairly  
6 quick, but you started working in digital advertising for a  
7 company called DoubleClick; right?

8 A That's right.

9 Q What was DoubleClick?

10 A DoubleClick was an Internet advertising solutions  
11 company.

12 Q And did DoubleClick provide tools to web publishers?

13 A Sure.

14 Q Just prior to the acquisition by Google, who was the  
15 CEO of DoubleClick?

16 A That would have been David Rosenblatt.

17 Q And what were some of the main tools that DoubleClick  
18 had prior to the acquisition?

19 A Can you -- can you restate the question?

20 Q Sure. What I'm trying to get at is did  
21 DoubleClick offer -- what tools did it offer a publisher, a  
22 web publisher?

23 A There were a myriad of products on offer to web  
24 publishers.

25 Q Is one of -- is one of the products that was offered go



1 by the acronym DFP?

2 A That's true at the time.

3 Q And DFP would be considered a publisher ad server?

4 A That's fair.

5 Q Also, DoubleClick had a product called an ad exchange;  
6 is that right?

7 A That's correct.

8 Q You came to work for Google after the acquisition of  
9 DoubleClick in roughly 2008; right?

10 A That's right.

11 Q And once you were officially part of Google, you spent  
12 some of your early days helping to -- joint strategy  
13 planning to integrate DoubleClick with Google; is that fair?

14 A That's a fair characterization, yeah.

15 Q Again, shortly after joining Google did you take any  
16 leadership role in what I'll call the buy-side of digital  
17 display advertising?

18 A I would characterize it slightly differently. I was --  
19 I was asked to take the leadership on helping build a  
20 display network to support advertisers and marketers, which  
21 would be a subset of the full buy-side offerings that Google  
22 had at the time.

23 Q Okay. We will -- we'll get to that ultimately, but  
24 again, you shortly after joining Google, you were then  
25 working with advertisers and marketers in those products;

1 right?

2 A That's true.

3 Q What I'm trying to make a distinction, at that time you  
4 were not working with publishers; right?

5 A That's correct, yeah.

6 Q In particular, did you eventually get a promotion while  
7 you were on -- with Google on the buy-side to take on more  
8 responsibility?

9 A Yes. I was asked to take on more responsibility over  
10 my tenure.

11 Q Did you get a promotion strictly to take more  
12 responsibility on the buy-side or the buy ad tools; right?

13 A If my recollection serves, the promotions may or may  
14 not have been tethered to the expansion of my scope.

15 Q I want to just talk briefly about some of the products  
16 that you were responsible for.

17 One of them would be a demand side platform known  
18 as DV360; is that right?

19 A That is one of the names that it went by over my  
20 tenure.

21 Q And another one I know went through another, you know,  
22 rebranding was originally maybe Google Content Network; is  
23 that right?

24 A Yes. That's -- that was the original name.

25 Q And then it changed to Google Display Network?

1 A Once we had built display features into it, we  
2 rebranded it, the Google Display Network.

3 Q And then eventually Google Display Network became under  
4 the umbrella of what is known as Google Ads; is that right?

5 A That's fair. Yep.

6 Q After about four years of working for Google, did you  
7 also gain responsibility for what I'll call sell-side  
8 products within digital display advertising?

9 A I don't think that timing is accurate.

10 Q Okay. In roughly what year do you think you took over  
11 responsibility for what I'll call sell-side products?

12 A I believe that was 2018.

13 Q What products did you gain responsibility for on the  
14 sell-side once you took that responsibility?

15 A That would -- at that time would have included the  
16 Google Ad Manager, which was a rebrand of what historically  
17 would have been DFP. It would have included AdSense and it  
18 would have included the exchange.

19 Q Where you took over responsibility for the sell-side,  
20 did you lose responsibility on the buy-side?

21 A I did not.

22 Q So at least beginning in 2018, you were in charge of  
23 products both that advertisers used and products that  
24 publishers used?

25 A That's correct.

1 Q I just want to finish up briefly your time at Google  
2 and then we'll kind of go back.

3 You eventually left Google display advertising to  
4 go to Google news; is that right?

5 A That's correct.

6 Q And that was roughly November of 2019?

7 A Yes.

8 Q And I think we talked about it, you then left Google in  
9 its entirety in November of 2022; is that right?

10 A That's correct.

11 Q And just so I have my timeline correct about your time  
12 at Google, you were in display advertising from shortly  
13 after the acquisition in 2008 to roughly 2019; is that  
14 right?

15 A That's correct.

16 Q Okay. I want to go back then to your time just prior  
17 to Google acquiring DoubleClick.

18 The CEO that you mentioned, David Rosenblatt, did  
19 he also come over and was a Google employee after the  
20 acquisition?

21 A Yes. I believe he was.

22 Q All right. There's going to be a binder and a screen,  
23 so whatever is more comfortable for you, but I want you to  
24 flip to in the binder that's going to be handed to you, the  
25 exhibits.

1 A Okay.

2 Q So I'm going to talk to you in PTX language, that's  
3 what the tabs are.

4 A Okay.

5 Q So in PTX 1814, so it would be towards the end of that  
6 particular binder.

7 THE COURT: Is there any objection to 1814?

8 MS. RHEE: No, Your Honor.

9 THE COURT: All right. Are you going to use the  
10 whole exhibit or just portions of it?

11 MR. FREEMAN: Just portions of it, Your Honor.

12 THE COURT: All right. So we'll follow the rule  
13 we talked about yesterday, that is only those portions being  
14 discussed will be the actual evidence in the case.

15 MR. FREEMAN: Well, just so -- I should clarify.  
16 There's no, like, additional email that's included. There's  
17 only one email of this particular exhibit.

18 What I meant by that is I will only be referencing  
19 portions of that email, but it is only a singular email.

20 THE COURT: Basically are you going to be relying  
21 on the pages that end in 742 to 788 or -- yeah, 788? In  
22 other words, is the entire document coming in?

23 MR. FREEMAN: That would be our intention but  
24 specifically, if the Court is not inclined, at least to 750,  
25 the actual email itself.

1 THE COURT: Is there any objection to the whole  
2 document going in?

3 MS. RHEE: Your Honor, with this witness given  
4 that he is literally only on the top portion of the email  
5 and that is for which he is the speaker, we don't have any  
6 objection.

7 With respect to what really is essentially an  
8 attachment to that email, it's just in email form, totally  
9 depends on what this witness -- or what the examination will  
10 be.

11 THE COURT: All right. Well, let's get started on  
12 the top part first.

13 MR. FREEMAN: Okay.

14 BY MR. FREEMAN:

15 Q Like I said, you can look at your binder or the screen,  
16 whatever is easiest for you.

17 Just to orient ourselves about this particular  
18 document, this is an email from you, Mr. Bender, in January  
19 of 2009; right?

20 A That's correct. It looks to be.

21 Q And you sent this email then to -- you sent it to one  
22 group and then cc'd another group. That being you sent it  
23 to the display GCN as we talked about, the network,  
24 engineering leads; is that right?

25 A That's who's on the to line, correct.

1 Q Then you also copied the GCN PMs or product manager  
2 team as well?

3 A That's correct.

4 Q And the subject of this particular email says, David  
5 Rosenblatt's overview of Google display strategy; right?

6 A That's the subject listed here, yes.

7 Q When Mr. Rosenblatt came over from DoubleClick to  
8 Google, was he then working in Google's display advertising  
9 business?

10 A I don't recall exactly where David was situated  
11 organizationally after he came across. He wasn't in an  
12 operational role as far as I recall.

13 Q But his duties weren't with the search engine; right?

14 A I don't actually know where he spent his time over that  
15 tenure. But I do know he wasn't in an operational role.

16 Q Well, in 2009, you shared his overview of Google's  
17 display strategy; right?

18 A That's accurate, yes.

19 Q And in particular, this, referring to the first  
20 paragraph, you sent it to your two teams because in your  
21 words, you found that it to be worthwhile to get his  
22 perspective; right?

23 A If you would give me a minute, I'd like a chance to  
24 review the document and then we can answer further questions  
25 about it. Thank you.

1 Q Absolutely.

2 I could see you turn the page, Mr. Bender.

3 What I was referring to was just that introductory  
4 paragraph that you put on this particular email.

5 A Sure. Yeah. I don't know who else can see the  
6 exhibit, so it appears as if I have forwarded notes taken by  
7 a colleague about a talk that David had given in Europe, and  
8 that this is basically a notes document of that talk.

9 Q Right. And that talk, though, was to Google, that  
10 being GCN display and YouTube sales team, so it was an  
11 internal presentation; right?

12 A It looks to be an internal presentation, that's  
13 correct.

14 Q And what you were forwarding, your words before,  
15 sharing his display strategy was you characterize it as it  
16 was worthwhile to get his perspective?

17 A Those are the words I used here, yes.

18 Q I then want you to flip to page -- three pages on that  
19 particular document, and there will be a heading at the  
20 bottom that will say, value of the platform.

21 A Okay. I see that.

22 Q So Google's display strategy, at least in 2009, was  
23 that the value of the platform by owning the primary ad  
24 server allowed the network to have a first look at each  
25 impression; right?



1 A That is what is written here.

2 Q Not only what is written but also what you shared with  
3 your team?

4 A That's correct.

5 Q And part of the value of owning the platform, and just  
6 so we're clear here we're talking about the publisher ad  
7 server; right?

8 A I believe so.

9 Q Well, do you see in the first paragraph under value of  
10 the platform, in the second sentence, it says: "It turns  
11 out that the most efficient way to access that inventory is  
12 by owning the primary ad server."

13 A I see that.

14 Q So the platform that is being discussed in this  
15 particular paragraph is the publisher ad server?

16 A That makes sense.

17 Q And for Google, that meant DFP?

18 A Yes. That would be the ad server name at the time.

19 Q And part of that -- of the value of owning DFP, was  
20 that there were huge switching costs; right?

21 A I don't personally know. There's a comment here that  
22 says that. I wasn't necessarily spending time on that side  
23 of the business to know.

24 Q And the origin of Google's interest in DoubleClick is  
25 because Google was having difficulty making their own

1 publisher ad server; right?

2 A Well, I don't know. I wasn't on the Google side to --  
3 in terms of how they decided to acquire DoubleClick.

4 Q I'm sorry.

5 If you look at the second sentence of the last --  
6 on the very bottom of this particular page, page 3, it says:  
7 "The origin of Google's interest was Google was way ahead  
8 intellectually but was having trouble building its own  
9 primary ad -- if you go to the next page -- server"; right?

10 A Okay.

11 Q And so the value of owning DFP to Google was that it  
12 could acquire inventory to monetize their network in this  
13 particular case going by GCN; right?

14 A That's what's written here.

15 Q That's what's written and what you shared to your team?

16 A That's correct. I shared these verbal comments with my  
17 team.

18 Q Going back to the switching cost, that switching your  
19 publisher ad server is a nightmare; right?

20 A I wouldn't characterize it that way. I don't have  
21 personal experience with that.

22 Q Okay. Well, on page 4 of this particular exhibit  
23 about, you know, a fourth of the way down, there's an  
24 asterisk in the question and then do you see a second  
25 asterisk in the question?

1 A I'm sorry, are we on the previous page we were on?

2 Q Page 4. So if you look at the very bottom, there's  
3 like a bunch of string of numbers where it says -- it will  
4 end in 745.

5 A Okay. 745. Okay. Okay.

6 Q And then there's an asterisk in the question and then  
7 right below that there's an asterisk in the question.

8 A Okay.

9 Q And in that particular question is: "Is it sustainable  
10 to be ahead on the exchange if you don't have the platform";  
11 right?

12 A I see. I see the -- I see the area that you're talking  
13 about, uh-huh.

14 Q And it says, asterisk David, it says: "My view is  
15 nothing really matters but the platform, nothing has such  
16 high switching cost. If there's a better network or  
17 exchange, you can switch it. Switching platforms is a  
18 nightmare"; right?

19 A Yeah, it looks like that was David's commentary there.

20 Q And he further says: "It takes an act of God to do  
21 it"; right?

22 A It seems like an overstatement.

23 Q I'm sorry, I missed that. It seems like what?

24 A Overstatement.

25 Q An overstatement.

1 Did you say in your first paragraph to your team  
2 that be careful, there's overstatements in here?

3 A I said that they would find it interesting.

4 Q And you also said it was worthwhile?

5 A To get his perspective.

6 Q And so at no point when you sent it to your two teams  
7 did you put any caution about, you know, things you disagree  
8 with?

9 A Not in this email.

10 Q I want to go then to the other side on the network,  
11 just at the very bottom of that particular exhibit, still on  
12 page 4 ending in 745 where it says, Implications for the  
13 network; do you see that? The very bottom. It's in bold on  
14 the left-hand side.

15 A Oh, I see it. It's just the title.

16 Q Just the title.

17 A Okay, yeah.

18 Q Okay. If you go then over to the next page, that the  
19 ad exchange that DoubleClick had that Google acquired was  
20 comparable to building the New York Stock Exchange or the  
21 London Exchange?

22 A I see the -- I see the area you're referencing, yep.

23 Q You shared with your team that what Google has created  
24 is what's comparable to the New York Stock Exchange or the  
25 London Stock Exchange?

1 A Any time you're trying to describe a complex system,  
2 metaphors or analogies can be helpful to understanding.  
3 It's clear that we weren't building another financial  
4 exchange. So definitionally, it is a metaphor, and that's  
5 how I took it at the time and my team would have taken it.

6 Q Understood.

7 And so in other words, Google was intending to do  
8 to display what Google did to search; right?

9 A I wouldn't agree with that characterization but that is  
10 what's here.

11 Q Again, though, you didn't share that with your team  
12 that you disagreed with anything in here; right?

13 A I forwarded the whole of the notes intact.

14 Q With no words saying that you disagreed with any  
15 portion of it?

16 A I would have shared a variety of things with my team,  
17 some of which I agreed with; some of which I disagreed with.

18 At the beginning of the email, it noted that we  
19 had a GCN vision meeting occurring the following week where  
20 we might have had discussion about all of these things.

21 Q And if you go to the next page, so ending in four -- or  
22 747, excuse me, do you see that?

23 When talking about the Google content network, so  
24 staying on the financial analogy or metaphor, is that the  
25 GCN, the advertising ad network, was like Goldman in

1 relationship -- as Goldman in relationship to the New York  
2 Stock Exchange; right?

3 A David himself says: "This isn't a perfect analogy."

4 Q Right. But it is an analogy?

5 A It is one analogy that one could use.

6 Q And the analogy is that Google would be both Goldman  
7 and own the New York Stock Exchange?

8 A As a metaphor, at a very high level, I think it's  
9 useful to simplify a very complex dynamic. The reality is,  
10 these things are very different when you get to a deeper  
11 level.

12 Q And in particular, though, the way it was structured is  
13 that Google was hedged a bit. Meaning that if another  
14 network turns out to be better, Google still makes money;  
15 right, through the exchange?

16 A That is what's written here.

17 Q And when we're talking about the exchange, we're  
18 talking about Google's AdX; right?

19 A That would be -- that would be what he would be  
20 referring to, yes.

21 Q We can get to this later, but the take rate of AdX was  
22 20 percent; right?

23 A That -- that sounds right.

24 Q And that was consistent throughout your time at Google  
25 display?

1 A I believe so.

2 Q And then if you go just two more pages up to page 8 of  
3 the actually document but it ends, if you're looking at the  
4 bottom right, in 749.

5 Are you with me?

6 A 749. Uh-huh.

7 Q So the goal of Google's display strategy in 2009 was  
8 that if you executed on these things, you would be able to  
9 crush other networks and that's the goal; right?

10 A So I would disagree with that.

11 Q That's what you sent to your team, describing it as a  
12 worthwhile read, was the ultimate goal was to crush other  
13 networks?

14 A Again, I called it an interesting read. It would have  
15 been something we discussed, and this would not have been  
16 how I felt about it at the time.

17 Q Not only did you say it was interesting, though, we've  
18 gone over this, you also said it was worthwhile to read?

19 A I did.

20 Q I want to then jump to your time in terms of the  
21 buy-side when you were just overseeing the buy-side  
22 products.

23 A Okay.

24 Q So we've talked about it. There was I know different  
25 names but DV360 was one of them, and then ultimately was a

1 network, which is now under the umbrella of Google Ads;  
2 right?

3 A That's right.

4 Q Okay. I just know all the name changes can get  
5 confusing all the time.

6 So I just want to establish some of the  
7 differences between those two things, the ad network and the  
8 demand-side platform.

9 A Okay.

10 Q Okay. And so Google Ads you have previously described  
11 as simpler or a turnkey solution; is that right?

12 A Yes. That was one of the value propositions we tried  
13 to build on the network.

14 Q And the advertising ad network typically paid Google by  
15 a cost-per-click basis; is that right?

16 A So advertisers and marketers were able to describe  
17 their objectives in the interface, and then had the  
18 opportunity to pay in various ways. Cost-per-click was one  
19 of those ways. They could also pay cost per view, cost per  
20 acquisition, cost per mille or CPM.

21 There were multiple ways, but I would say the  
22 majority way that these advertisers and marketers chose to  
23 bid was on a cost-per-click basis, and so then they would  
24 pay only if their advertisement received a click.

25 Q At the time your took responsibility for the ad



1 network, were advertisers using the ad network purchasing  
2 inventory on third-party exchanges?

3 A At the time I took over responsibility, I -- no, I  
4 don't think so.

5 Q Meaning kind of the inverse of that question then,  
6 meaning when you took over, the ad network was only buying  
7 inventory on things coming through Google's AdX?

8 A I wouldn't characterize it that way.

9 Q How would you characterize it?

10 A There were multiple sources of inventory for the  
11 network. The starting point would have been the AdSense  
12 tags that existed on many publishers across the web. When  
13 the ad exchange came across with the acquisition, that was  
14 another place that an integration was made. Over time there  
15 was backfill from the AdMob network, there's backfill from  
16 YouTube.

17 So there was a variety of inventory sources over  
18 time that were available to buyers who were using the  
19 network.

20 Q Appreciate that.

21 So the only exchange used by the ad network when  
22 the time you took over -- I know it changes which we'll get  
23 to -- the time you took over, was only using the exchange of  
24 AdX; is that fair?

25 A The initial exchange that the network was integrated

1 into was the exchange, yes. That came across in the  
2 acquisition.

3 Q And that is different than DV360, meaning at the time  
4 you took over DV360, DV360 was buying inventory on  
5 third-party exchanges.

6 A That's correct.

7 Q During your time when you were in a leadership role on  
8 what I'll call the buy-side, did publishers start using a  
9 technology called header bidding?

10 A I believe they did during that time frame.

11 Q And header bidding allowed publishers and advertisers  
12 to bid on inventory without using any of Google's products;  
13 right?

14 A That sounds right.

15 Q And some of the inventory from header bidding then was  
16 made available on third-party exchanges; right?

17 A I believe that's accurate.

18 Q And if an inventory was sold by header bidding through  
19 a third party exchange, okay; are you with me?

20 A Yep.

21 Q Then that meant that Google's AdX wouldn't be able to  
22 use or take their take rate; right?

23 A That -- that sounds right.

24 Q When DV360 was purchasing inventory made available on  
25 third-party exchanges, did Google implement any spam or

1 cybersecurity filters?

2 A I don't -- I don't recall.

3 Q Do you recall any effort within digital display  
4 advertising to have in-house, let's start with, spam  
5 filters?

6 A So generally, yes.

7 Q And did those spam filters also apply to DV360 when  
8 they were buying on third-party exchanges?

9 A Yeah, that's what I don't -- I don't recall.

10 Q So you're saying it's possible that Google was  
11 permitting advertisers to buy on third-party exchanges with  
12 no spam filter?

13 A I think part of the value proposition of DV360 is that  
14 it's a conduit for advertisers to be able to buy across  
15 multi exchange. And there's an understanding there that if  
16 something fraudulent or spammy happens in those cases, that  
17 the -- you know, that would be -- the onus would be on the  
18 advertiser.

19 Q Were you ever told that DV360's or customers using  
20 DV360 were providing a huge chunk of revenue to publishers  
21 using header bidding?

22 A I believe I may have been, yes.

23 Q And you can go back either to the screen or -- this is  
24 PTX 587.

25 THE COURT: Any objection to 587?

1 MS. RHEE: Court's indulgence. No, Your Honor.

2 THE COURT: All right. It's in.

3 (Plaintiffs' Exhibit Number 587 admitted into evidence.)

4 BY MR. FREEMAN:

5 Q I want to start then with the email about midway or  
6 just past, on the first page, where it says forward message  
7 but from Jonathan Bellack; do you see that?

8 A I do.

9 Q So this email was sent on March 16th of 2018 to you?

10 A Yes.

11 Q Who is Jonathan Bellack?

12 A Jonathan Bellack is a product director at this time  
13 responsible for the sell-side platform.

14 Q When you took responsibility over the sell-side or  
15 products within the sell-side, did Mr. Bellack report to  
16 you?

17 A Yeah, he would have when that team rolled over to me.

18 Q In particular, in this email he communicates to you  
19 that a huge chunk of publisher header bidding revenue is  
20 Google demand going outside our ecosystem; right?

21 A I see that's the way he characterizes it, yes.

22 Q Okay. And then just above it is from the same day, you  
23 know, later that afternoon you see 12:59 from you; do you  
24 see where I am?

25 A I see my forward of the email, yes.

1 Q And you forward the email then to you say Payam; do you  
2 see that?

3 A I do.

4 Q And then I think we can connect the dots, that it's  
5 Payam Shodjai? Apologies if I'm mispronouncing his last  
6 name.

7 A That's who I was forwarding it to, yes.

8 Q And who is or who was Payam to you?

9 A So Payam was responsible -- so it was another product  
10 director on my team responsible for the bid manager product.

11 Q And the bid manager product would have then been at  
12 least a subset of the DV360 product that we're talking  
13 about?

14 A That's correct.

15 Q So you forward to Payam and your response was: "This  
16 seems pretty broken"; do you see that?

17 A I do.

18 Q So what you thought was broken was that Google was a  
19 huge chunk of publisher header bidding revenue outside your  
20 ecosystem; right?

21 A By this time we had a better understanding of some of  
22 the problems with header bidding, and so having things flow  
23 to header bidding inventory would have been broken in my  
24 mind.

25 Q And then you see then at the top email Payam responds

1 to you, and says: "Agree, this is broken"; do you see that?

2 A I do.

3 Q And the problem that he identifies with header bidding  
4 is that it merely exists; right?

5 A That is what is written here, yeah.

6 Q And in particular he says: "The origin of header  
7 bidding is because publishers felt locked in by Dynamic  
8 Allocation in DFP"; right?

9 A Again, it's not my email, so that is his  
10 characterization, which I don't necessarily agree with.

11 Q Did you respond to that and say you disagree with it?

12 A I don't recall.

13 Q Well, let's talk about your potential response then.

14 You used Google's chats as you were an employee at  
15 Google; is that right?

16 A Sure. On occasion.

17 Q And, in particular, you used chats for substantive  
18 purposes; right?

19 A I wouldn't say that. I generally wouldn't use chats  
20 for substantive conversations.

21 Q Were you ever contacted then in this particular  
22 litigation to ask that question of whether you used chats  
23 for substantive purposes?

24 A I believe I was. I was surveyed, and I would have said  
25 something to the same effect.

1 Q So your testimony is that you did not use chats for  
2 substantive purposes, that's what you're saying?

3 A I said I generally wouldn't use chats for substantive  
4 purposes. If there was something substantive, it would have  
5 come up in another form factor, an email, a document, a  
6 meeting.

7 Q So you're saying if the result communicated to the  
8 Department of Justice was you used occasionally substantive  
9 chats, that would have been an inaccurate representation?

10 A I'm saying in general, I wasn't using chats for  
11 substantive conversations.

12 Q But you were using chats then, to some degree, for  
13 substantive purposes?

14 A I would say it's possible that there was something like  
15 that, but likely we would have moved those to another form  
16 factor, such as a meeting, a document or an email.

17 Q Well, let's remove the doubt and look at PTX 1736.

18 THE COURT: Any objection?

19 MS. RHEE: No, Your Honor.

20 THE COURT: All right. It's in.

21 (Plaintiffs' Exhibit Number **1736** admitted into evidence.)

22 BY MR. FREEMAN:

23 Q Are you with me?

24 A I am.

25 Q Do you see the format of PTX 1736 is not like an email

1 but like a chat; right?

2 A It looks like a chat, yes.

3 Q And you're discussing in this chat with Payam, the same  
4 person who was on the email that we just looked at; right?

5 A That's correct.

6 Q Now, I don't want to get into specifics necessarily,  
7 but you would agree this is a substantive chat; right?

8 A And the history would have been on to capture this  
9 substantive chat; correct?

10 Q Well, we can talk about that.

11 So would you agree, though, let's start here of  
12 this substantive -- you agree that you were communicating  
13 with Payam substantively in PTX 1736; right?

14 A This was fact-finding, as far as I can tell. And then  
15 we would have had this discussion again where later on I say  
16 it's worth reopening.

17 Q I have a simple question. 1736 is a substantive chat;  
18 right?

19 A It seems to be.

20 Q Okay. And, in particular, were you ever notified by  
21 Google, or were you aware that you were to preserve chats  
22 pursuant to a litigation hold?

23 A I would have been, sure.

24 Q When did you become aware that you were to preserve  
25 chats pursuant to a litigation hold?



1 A In -- I believe in October 2019 I would have received a  
2 litigation hold related to this matter.

3 Q And a default setting then for chats for you was  
4 history off; right?

5 A I would have left the defaults at whatever it was set  
6 to.

7 Q So did you take any affirmative steps to turn history  
8 on in order to save substantive chats?

9 A I -- I don't recall, by the way.

10 Q But you don't recall taking any affirmative step to  
11 save substantive chats?

12 A That's fair.

13 MR. FREEMAN: Your Honor, I think we already did  
14 this, but we would seek the full admission of 1736.

15 THE COURT: It's in evidence.

16 MR. FREEMAN: I must have missed it. We would  
17 seek the admission of 1736.

18 THE COURT: Yeah. It's in.

19 MR. FREEMAN: Okay. Thank you.

20 BY MR. FREEMAN:

21 Q I'd like then to go back to the email that we were  
22 discussing.

23 A Can you remind me of the number?

24 Q Yeah. PTX 587.

25 A Thank you.

1 Q And so back to Payam indicating that "header bidding  
2 was born because publishers felt locked in by Dynamic  
3 Allocation"; right?

4 A That that's his language here.

5 Q And Payam indicated that header bidding gives many  
6 publishers better yield; right?

7 A Again, his language in this email.

8 Q Yield is more money; right?

9 A That's right.

10 Q And so it was a no-brainer for a publisher to adopt  
11 header bidding; right?

12 A Yeah. Again, that's what he writes here.

13 Q And at the time, at least in 2018, Google was having  
14 difficulty having distinction between what is header bidding  
15 inventory and what is non header bidding inventory?

16 A I believe that's true.

17 Q So one of the proposed solutions to the rise of header  
18 bidding, do you see where -- "but none were going to be  
19 silver bullets"; right?

20 A I see that section, yeah.

21 Q And the first one that Payam suggests is Exchange  
22 Bidding, also known as EB; right?

23 A Yep.

24 Q What is Exchange Bidding?

25 A I don't recall to give you a good definition.

1 Q You don't recall that Exchange Bidding was then  
2 allowing for more purchases in real time?

3 A That -- that sounds right. It's been a number of years  
4 since I was involved in the business, so ...

5 Q And the problem that Payam identifies with Exchange  
6 Bidding is "it stems the bleeding"; right?

7 A I see. I see that's what he writes here.

8 Q "And Google thinks it's better to cannibalize ourselves  
9 than to see others take share from us"; right?

10 A Yeah. I don't know what he meant by that.

11 Q But the problem with Exchange Bidding was that it had  
12 too low of a margin of 5 percent; right?

13 A Yeah. Again, this is -- this is what Payam's writing  
14 here.

15 Q Well, Payam worked for you; right?

16 A He did.

17 Q And this is him communicating in real time his thoughts  
18 to his boss -- that being you -- in 2018; right?

19 A That's true.

20 Q And he would have done his best at that particular time  
21 to be truthful and accurate with you; right?

22 A That's fair.

23 Q And the low Exchange Bidding margin of 5 percent is  
24 significantly different than AdX's take rate of 20 percent;  
25 right?

1 A That sounds accurate.

2 Q You were also a proponent or advocate of the  
3 advertising ad network -- of the advertising ad network  
4 buying on third-party exchanges; right?

5 A That's true.

6 Q And just one point of clarification before we move on.

7 One of the proposed solutions for -- to stem  
8 header bidding was Poirot; right?

9 (Reporter interrupted for clarification.)

10 MR. FREEMAN: Poirot. Sorry. P-O-I-R-O-T.

11 THE WITNESS: I don't -- I don't recall.

12 BY MR. FREEMAN:

13 Q But that was at least -- do you still have PTX 587 in  
14 front of you?

15 A I do.

16 Q That was one of the suggestions that Payam made?

17 A It's listed here. Poirot, from what I can recall, was  
18 related to how do you handle first-price auctions.

19 Q Going back to -- you were a proponent or advocate,  
20 however you would describe it, of the ad network buying on  
21 third-party exchanges?

22 A I was, yes.

23 Q And you continued to be like that through your time at  
24 Google Display?

25 A I believe I, yeah, kept that stance.

1 Q And you kept that stance of advocating for the ad  
2 network to buy on third-party exchanges knowing that at  
3 least some header bidding inventory was being made available  
4 on those third-party exchanges?

5 A I -- I wouldn't characterize it that way.

6 Q Well, we just went over, through PTX 587, that you were  
7 told that header bidding inventory was being made available  
8 on third-party exchanges; right?

9 A So the date of the email we just looked at was 2018.  
10 My advocacy for the AdWords bidder started before that,  
11 likely before the phenomenon of header bidding existed. And  
12 one of the -- one of the concerns we had with buying into  
13 third-party exchange environments from the network was  
14 protecting the network buyers from spam and fraudulent  
15 inventory. So building up those defenses was paramount to,  
16 you know, enable us to do that rollout.

17 Q That's why I asked you, though, that your position on  
18 the ad network buying on third-party exchanges remained  
19 consistent, and you said correct.

20 A I would say largely consistent. My understanding of  
21 the dynamic certainly evolved over my tenure.

22 Q But at no point did you advocate that the advertising  
23 ad network or the demand-side platform should no longer bid  
24 on third-party exchanges; right?

25 A That's fair.

1 Q So back to my question, which is: Even after being  
2 told that header bidding inventory is made available on  
3 third-party exchanges, you wanted to bring in more of  
4 Google's customers into the third-party exchanges?

5 A I -- I wouldn't characterize it that way.

6 Q Well, adding customers using the ad network to  
7 third-party exchanges, that would be increasing the number  
8 of buyers; right?

9 A Potentially.

10 Q And so, potentially, you were advocating then for more  
11 buyers to bid on header bidding inventory on third-party  
12 exchanges?

13 A What I'm saying is temporally, I am not sure about what  
14 you just said.

15 Q But temporally, like you said, you never advocated to  
16 pull out of bidding on third-party exchanges?

17 A That -- that is -- that is fair.

18 Q Even after receiving the email of 587; right?

19 A That's fair.

20 Q And just so we can put a name to it because there's so  
21 many names and acronyms in this case, the actual product of  
22 rollout of the ad network buying on third-party exchanges  
23 was AWBid or A-W-B-I-D; right?

24 A Yes, that's correct. It would have previously been  
25 called XBid.

1 Q X standing for cross exchange?

2 A Correct.

3 Q But the rollout of the product AWBid, did that allow  
4 the advertising network to bid on any inventory on  
5 third-party exchanges?

6 A No.

7 Q What did it limit it to? What type of inventory, is my  
8 question.

9 A So the initial rollout of AWBid was focused on the  
10 remarketing use case.

11 Q Just at a high level, can you describe what remarketing  
12 advertising is?

13 A Sure. There are many ways remarketing could be used.  
14 I'd say the exemplar use case is a -- a user who's using a  
15 browser like Chrome, goes to a website, puts something into  
16 their shopping cart and then doesn't make the purchase.  
17 And what this technology will do is establish two lists of  
18 browser IDs, the ones who landed on the shopping cart page,  
19 and also the ones who landed on the thank-you-for-purchasing  
20 page. And what you can do is a Boolean operation where you  
21 remove the IDs that had successfully completed the purchase,  
22 you're left remaining with a set of very interested, you  
23 know, browser IDs in effect. And what remarketing does is  
24 where you see those browser IDs in your advertising, you  
25 could reach them with a specific message, hopefully helping

1 complete the purchase.

2 Q And, again, when AWBid was launched, it allowed for  
3 bidding Google's customers to bid on third-party exchanges  
4 but only in the context of remarketing inventory?

5 A As it relates to the network, yeah. Customers who were  
6 using that front door. Google customers could use the  
7 network and/or DBM or, you know, DV360. If they wanted to  
8 buy multi-exchange, they could use DV360; and if they wanted  
9 the more turnkey solution, they could use the network for  
10 that.

11 Q Just one point of clarification to make sure -- because  
12 there's so many acronyms.

13 You said using DV360 was the more -- the buyer had  
14 more control over what they purchased; is that fair? Less  
15 automated is what I'm trying to get at.

16 A I would say DV360 enabled buyers to buy across that  
17 full range of third-party exchange inventory, and they would  
18 manage those campaigns themselves but did also use some  
19 automation.

20 Q And then when you talk about the network, I think we've  
21 already established that that is under the umbrella of  
22 Google Ads now?

23 A Right. Google Ads' customers largely would come into  
24 the AdWords interface, set up their campaign objectives. If  
25 their campaign type was remarketing type, in those cases,



1 those campaigns could run across the third-party exchanges  
2 that we had integrated with.

3 THE COURT: And if they were not interested in  
4 remarketing, then what?

5 THE WITNESS: If they were not interested -- on  
6 the network side? They would run across the side swath of  
7 inventory that we already had available there.

8 THE COURT: And stayed within the Google network.

9 THE WITNESS: It would have been AdSense, the  
10 AdExchange, AdMob backfill, YouTube backfill, yeah.

11 BY MR. FREEMAN:

12 Q At the time you left Google display advertising, was  
13 what you just described true, meaning Google Ads -- just for  
14 clarity, Google Ads could buy in third-party exchanges, but  
15 only in the context we've just gone over?

16 A As far as my recollection, that's true.

17 MR. FREEMAN: One moment, Your Honor.

18 (Pause.)

19 MR. FREEMAN: Your Honor, I have nothing further.

20 Just for clarity, PTX 1814, we move the first nine  
21 pages for it to be -- meaning the full email, but as  
22 Ms. Rhee has already indicated, we are not seeking to admit  
23 the attachments.

24 THE COURT: All right. Hold on one second. So  
25 the first nine pages stop at one Bates stamp number? 57, is

1 that right?

2 MR. FREEMAN: For completeness, it would be 750,  
3 but 750 merely just has Mr. Bender's email address on it.  
4 But that would not be an attachment.

5 So we would move from 742 to 750, but not any  
6 pages after 750, which are the attachments.

7 THE COURT: Let me make sure everybody agrees with  
8 that then. So 742 to 750, that is what is in for  
9 Exhibit 1814 and nothing more; right?

10 MR. FREEMAN: That's correct, Your Honor.

11 THE COURT: All right. Very good.

12 MR. FREEMAN: Thank you. We pass the witness.

13 (Plaintiffs' Exhibit Number 1814 pgs 742 to 750 (later  
14 modified) admitted into evidence.)

15 CROSS-EXAMINATION

16 BY MS. RHEE:

17 Q Good morning, Mr. Bender.

18 A Good morning.

19 Q My name is Jeannie Rhee, I represent Google, and I will  
20 be asking you a couple of questions this morning; okay?

21 A Yep.

22 THE COURT: Do we have books for ...

23 MS. RHEE: Oh, of course, Your Honor.

24 THE COURT: All right. Ms. Rhee.

25 BY MS. RHEE:

1 Q Now, Mr. Bender, I just want to go back to the  
2 beginning.

3 When you joined Google in 2008, just from your  
4 direct examination we take it that you were working on  
5 Google's buy-side tools?

6 A From early on after I joined, I was working on the  
7 development of what became the Google Display Network.

8 Q And that's now Google Ads?

9 A Yes.

10 Q And, to your knowledge, does Google Ads enable the  
11 purchase of ads that appear in apps?

12 A Yes, it would.

13 Q And what about native ads?

14 A Yes as well.

15 Q And what about the purchase of instream video ads?

16 A Yes, that's true. Uh-huh.

17 Q So if I could direct your attention to the binder in  
18 front of you, and it's tab 1.

19 MS. RHEE: And for the record, that's DTX 1508.

20 THE COURT: Is there any objection to  
21 Defense 1508?

22 MR. FREEMAN: No, Your Honor.

23 THE COURT: All right. It's in.

24 (Defense Exhibit Number 1508 admitted into evidence.)

25 BY MS. RHEE:

1 Q And if I could direct your attention to Slide 8 of this  
2 deck.

3 MS. RHEE: And Mr. Spalding, with your assistance,  
4 actually. Thank you.

5 THE COURT: And that's Bates ending 863; is that  
6 right?

7 MS. RHEE: Yes, Your Honor.

8 THE COURT: All right.

9 BY MS. RHEE:

10 Q Now, Mr. Bender, where you see a graphic in front of  
11 you, you see at the top there's a box that's labeled DV3; do  
12 you see that?

13 A Sure.

14 MS. RHEE: And the box actually that is the white  
15 one over there. Thank you.

16 BY MS. RHEE:

17 Q And, again, is that just shorthand for DV360?

18 A Yes, that would be. Uh-huh.

19 Q Okay. And then the next box is Google Ads, which we've  
20 just been talking about; right?

21 A That's right.

22 Q Okay. And then the third box is AdX buyers; do you see  
23 that?

24 A I do.

25 Q And what are AdX buyers?

1 A So those are buyers into the ad exchange. That could  
2 be other networks, it could be agency trading desks, those  
3 types.

4 Q And now when you see the lines going down to the boxes  
5 at the bottom -- let's go through each of the boxes at the  
6 bottom in turn; okay?

7 A Sure.

8 Q Okay. So the first box is non-Google.  
9 What does that represent?

10 A There may be more there than I'm aware of, but  
11 certainly as it relates to the Google Ads' case, that would  
12 be the third-party exchanges that remarketing was able to  
13 run on.

14 Q And with respect to the next box, AdMob, what is that?

15 A Sure. AdMob is an app network, and Google Ads had the  
16 ability to run into those environments as well.

17 Q Because Google Ads can serve and transact mobile app  
18 transactions; is that right?

19 A Yes.

20 Q Okay. And then AdX, we've already talked about that.

21 And what is AdSense, the box there at the bottom?

22 A Yeah. AdSense, what I was referring to earlier, that's  
23 a separate tag that many publishers across the Internet have  
24 installed in order to get advertising from Google.

25 Q And now when you see all the various lines in many,

1 many different colors, let's try to take each one of them in  
2 turn. Okay.

3 So starting with DV360, when you look at this  
4 graphic, is DV360 able to connect to the non-Google  
5 exchanges?

6 A Yes. That would be the case.

7 Q And then, similarly, D360 allows its buyers to connect  
8 with AdMob; is that right?

9 A Correct.

10 Q And similarly with AdX; is that right?

11 A Yes.

12 Q And then finally with AdSense; is that right?

13 A That's correct.

14 Q Okay. And then turning to Google Ads, similarly is  
15 Google Ads, through cross exchange bidder or AWBid, able to  
16 connect with non-Google exchanges?

17 A That's correct.

18 Q Okay. And what about AdMob?

19 A Yes.

20 Q Okay. And what about AdX?

21 A Yes.

22 Q And what about AdSense?

23 A Certainly.

24 Q Okay. And finally, the AdX buyers. So those buyers  
25 who are connecting through AdX, are they able to buy on

1 AdMob?

2 A It appears so.

3 Q And what about AdX?

4 A Certainly.

5 Q And what about AdSense?

6 A They can there as well.

7 Q Okay. So now, Mr. Bender, you remember being asked on  
8 your direct examination about DV360 versus what was formerly  
9 the Google Display Network and now is referred to as Google  
10 Ads; do you remember those questions?

11 A Sure.

12 Q Okay. Now, what did you mean by the value proposition  
13 of DV360 versus an advertiser who would choose to go and  
14 purchase on the network?

15 A There are -- you know, our customers broadly on the  
16 buy-side are agencies, marketers who have a variety of  
17 goals, and depending on those goals, some choose to use  
18 Google Ads; some choose to use DV360, or, you know, DBM, and  
19 some choose to multi-home, which is used in both, and we saw  
20 a lot of customers doing that.

21 But what we wanted to do was help point customers  
22 appropriately to basically the best what we call front door  
23 for their goals.

24 Q And when you say the best front door, what do you mean  
25 by that?

1 A Depending on the campaign, you know, you may be an  
2 agency who has a wide variety of clients, and there are some  
3 clients that want to deploy a more turnkey optimized  
4 campaign, and in those cases, we may suggest to them that  
5 they use Google Ads.

6 There may be other customers who really are  
7 optimizing for broad reach who want to manage those  
8 campaigns themselves and run in a multi-exchange  
9 environment, and those customers we would point to use DBM,  
10 and then there are customers, like I say, multi-home, they  
11 find there's value in both, and over time they learn how to  
12 set those up so that they're as complementary as possible.

13 Q Now, you talked about how, at least at the outset when  
14 DV360 was built out at Google, that if advertisers choose  
15 DV360, the value proposition was something to the effect --  
16 if I'm remembering your direct testimony, the onus is on the  
17 advertiser to make sure that they took care of the quality  
18 of the inventory on the other side.

19 Have I gotten that correct?

20 A Yeah, that's fair.

21 Q And why was the value proposition, at least with  
22 respect to the onus of making sure that the quality of the  
23 third-party inventory was what the advertiser wanted, why  
24 was that different at the network?

25 A Yeah. So maybe it's worthwhile just talking for a



1 second about the nature of a platform relative to a network.  
2 Because I think that historically there was a deal that  
3 would have been done between a publisher website and an  
4 individual advertiser. And they may have used the  
5 DoubleClick ad server on the buy-side to send those tags  
6 over to the publisher ad server, which may or may not have  
7 been the DoubleClick ad server. But really the media on  
8 which that's all transacting are outside of any certainly  
9 Google media.

10 So that's -- it just -- from a philosophy  
11 standpoint, things on the platform are set up to just enable  
12 those transactions to happen broadly.

13 When it comes to advertisers coming to AdWords or,  
14 you know, the network in this case, the -- there's a bit of  
15 a different expectation that we had helped set, which was  
16 that we would enable these advertisers and marketers to best  
17 reach their business goals, whatever they may be, and I laid  
18 some of those out earlier. And part of that is that they  
19 would be running in an unsafe, high-quality inventory. That  
20 was part of the value proposition. And so I hope I answered  
21 your question there.

22 THE COURT: I want you to follow up. I thought  
23 you were going to make a clear distinction between platforms  
24 and networks.

25 THE WITNESS: Sure. I could go into more detail

1 there.

2 THE COURT: Yeah.

3 THE WITNESS: So maybe going back a step in the  
4 history of a network, which is --

5 THE COURT: Well, a network consists of several  
6 platforms?

7 THE WITNESS: So I would explain it slightly  
8 differently.

9 THE COURT: All right.

10 THE WITNESS: So historically if an advertiser  
11 wanted to sell some sports shoe, they would potentially have  
12 to reach out to many publishers individually, tens, hundreds  
13 of publishers, and just the transactions there would be  
14 individual, they would be negotiating with each of them for  
15 the rate to run on their site, and then they would have to  
16 send them an ad tag. And so there's a lot of overhead, just  
17 historically, in terms of how that worked. It's more  
18 similar even to how magazines used to work as far as these  
19 individual publishers.

20 So the notion of a network was just to help  
21 simplify that part of buying, where the publishers would  
22 make some of their available -- some of their inventory,  
23 rather, available for aggregation. And so then an  
24 advertiser would just have to come to a single network and  
25 say I want to buy, you know, in your sports vertical. And

1 this network may have a sports vertical, a travel vertical.  
2 And that represents, itself, maybe 100 sites. But instead  
3 of having to transact with 100 different sites, they could  
4 share one single tag.

5 So that's kind of what really the historical part  
6 of a network is, and then, you know, we added capabilities  
7 at Google to improve it beyond that. But that's kind of the  
8 historically kind of perspective.

9 A platform is really, you know, a term that's  
10 used. It's a mechanism for enabling ad serving, but it  
11 doesn't necessarily have to do with the media at all. So,  
12 you know, many websites -- you know, CNET had its own ad  
13 server. And so, you know, when somebody comes -- an  
14 advertiser comes and asks to run a campaign, they would  
15 traffic it in their ad server, and it would run on the  
16 appropriate days.

17 THE COURT: But the server is basically -- loosely  
18 spoken, that's the platform.

19 THE WITNESS: That's right, yeah. And I would say  
20 it's kind of independent, just as far as these publishers  
21 and advertisers who are using a platform can think of it as  
22 their instance of a proprietary technology.

23 THE COURT: Got it.

24 BY MS. RHEE:

25 Q Just following up on the Court's question.

1           Mr. Bender, when you talk about the historical  
2 origin of the network and the aggregation of publisher  
3 inventory, what, if anything, did Google do to curate or  
4 call or ensure the quality of that publisher inventory made  
5 available on the network?

6       A     So there's a lot of work done there. You know, I'd say  
7 from when I started at Google, there was even just what we  
8 would call parity functionality that needed to be built for  
9 Google such that the network that we had would even work for  
10 display advertising buyers, and part of that was ensuring  
11 that the inventory was safe and of high quality.

12           And so that would have been work that carried  
13 forward throughout my entire tenure, because the bad actors  
14 in the ecosystem of course were continuing to evolve, and so  
15 in order to be able to maintain quality, that work, you  
16 know, fighting spam, fighting fraud, you know, continued  
17 throughout.

18       Q     Now I want to turn your attention to O&O, otherwise  
19 known as owned and operated properties.

20           Are there examples of owned and operated buying  
21 tools that are available in the market?

22       A     Sure.

23       Q     And can you think off the top of your head about what  
24 some of those might be?

25       A     Sure. So to buy Facebook, you would go to their buying

1 tool. That's where they make their site available for  
2 targeting.

3 Q And does Amazon have a buying tool available if there  
4 is one?

5 A Amazon would have one as well, yeah.

6 Q And so if a Google Ads' advertiser feels like it is not  
7 reaching its campaign goal or objective using Google Ads,  
8 are they free to choose to switch their spend to any of the  
9 other ad-buying tools out there, including Facebook and  
10 Amazon?

11 A Oh, yeah. Absolutely.

12 Q And in the time that you were at Google, how often  
13 would you see that phenomenon?

14 A I would say fairly frequently. It's a very competitive  
15 ecosystem. The players would have evolved over my tenure.  
16 But certainly, yeah, advertisers can move their money  
17 elsewhere if they want.

18 Q And does that include smaller advertisers? Are they in  
19 any way prohibited from choosing to buy through Facebook or  
20 Amazon?

21 A Yeah, certainly not, as far as I'm aware.

22 Q I want to direct your attention to DTX 549, and that is  
23 tab 2 in the binder in front of you.

24 THE COURT: Any objection to 549?

25 MR. FREEMAN: No, Your Honor.

1 THE COURT: All right. It's in.

2 (Defense Exhibit Number 549 admitted into evidence.)

3 BY MS. RHEE:

4 Q And, in particular, I want to direct your attention to  
5 page 24 of this AdWords display overview.

6 You see this is a slide that is -- and if you just  
7 turn and flip two pages beforehand under the section called  
8 market and competitive landscape.

9 A Yeah, I see that.

10 Q Okay. So let's actually just look at --

11 MS. RHEE: Thank you so much. Could we make that  
12 even a little bit bigger for eyes? Thank you.

13 BY MS. RHEE:

14 Q Now, this is a projection into 2020, as well as it  
15 looks like a historical overview; is that fair?

16 A That seems to be what this slide is, yes.

17 Q Okay. And on the key code of this graphic, you see the  
18 green represents Google, the various shades of green down  
19 there?

20 A Right. Yeah.

21 Q And you see the blue represents FB, Facebook; is that  
22 right?

23 A Yeah. That would stand for Facebook. Uh-huh.

24 Q Okay. There is an orange reference to Amazon, and  
25 we'll get to why you don't see it in the graphic.

1 A Uh-huh.

2 Q And then the purple is Criteo; do you see that?

3 A I do.

4 Q And the red is other; is that right?

5 A Yes, that looks right.

6 Q And then there are some bullets to accompany this  
7 graphic, and the first bullet says: "Google's share in  
8 display is expected to stay largely flat"; do you see that?

9 A Yeah, I do.

10 Q And with a 19 percent CAGR. Is that compound annual  
11 growth rate?

12 A That would be, yes.

13 Q Okay. Is that consistent with what you observed during  
14 your time in the display ad business in terms of Google's  
15 share?

16 A Yeah. I don't have any reason to dispute this.

17 Q And, in fact, when we look at the graphic, it looks  
18 like that green slope is very gently sliding down.

19 A Yes.

20 Q Okay. Now, what about the blue -- because you see the  
21 bullet point that starts with FB; right?

22 A Right.

23 Q And does it say here: "FB is poised to outpace the  
24 market at 24 percent compound annual growth, growing to a  
25 56 percent share by 2020"; is that right?

1 A Yeah, that's what it says. Uh-huh.

2 Q And is that consistent with your observation of the  
3 competitive landscape while you were in the display --

4 A That is definitely consistent.

5 Q And then when you look at the graphic, you see the blue  
6 part of this graphic going up?

7 A Yep.

8 Q Okay. And then, finally, you see the last bullet,  
9 which is 46 percent of the 2017 market -- because this is a  
10 2017 doc -- is managed by others largely fragmented, Amazon  
11 poses a new threat, but they are still expected to remain  
12 very small through 2020; you see that?

13 A Yeah, I do. Okay.

14 Q And, hence, we don't see a whole lot of the orange,  
15 because in 2017, Amazon was just arriving on the horizon; is  
16 that right?

17 A Yeah, that's fair. Yeah.

18 Q Okay. So now similarly, let's turn --

19 THE COURT: I'm sorry. Let me ask you a question.

20 Do you know whether this is directed to U.S.  
21 market or world market, if you know?

22 THE WITNESS: Yeah, I -- I don't know. There  
23 are -- I see some footnotes here that are possibly helpful,  
24 but I don't believe I put together this slide.

25 THE COURT: If you can read that footnote, you



1 have incredible vision.

2 Does anybody know, for the record?

3 MS. RHEE: Your Honor, we will get back to you  
4 very shortly while we continue the examination for  
5 efficiency sake. Is that all right?

6 THE COURT: Yes. Thank you.

7 MS. RHEE: Okay.

8 BY MS. RHEE:

9 Q Now, Mr. Bender, if I could direct your attention to  
10 DTX 259, hopefully tab 3 in your binder.

11 A Got it.

12 THE COURT: Any objection?

13 MR. FREEMAN: No objection, Your Honor.

14 THE COURT: All right. It's in.

15 (Defense Exhibit Number 259 admitted into evidence.)

16 MS. RHEE: So now if we could go to page 4 of that  
17 slide. And again, for -- thank you, Mr. Spalding. Okay.

18 BY MS. RHEE:

19 Q And now this is a -- an assessment in the summer of  
20 2015. If you could see the bottom of the competitive  
21 analysis internal to the company; is that right?

22 A Yes, that looks to be.

23 Q Okay. And the top here begins with -- at the very top  
24 of the white box: The programmatic competitive landscape is  
25 comprised of competitors with two types of solutions,

1 management and measurement. Just paraphrasing to make this  
2 go faster. Do you see that?

3 A Yeah. I do. Yeah.

4 Q Okay. So if I could direct your attention, Mr. Bender,  
5 to the management players. You see --

6 MS. RHEE: And, Mr. Spalding, maybe if you could  
7 make that -- yeah. Just to make sure that people can read  
8 it. Okay.

9 BY MS. RHEE:

10 Q Okay. So in the paren, it says: "Players we compete  
11 against for share"; do you see that, Mr. Bender?

12 A Yeah, I do.

13 Q What does that mean?

14 A My take and what I'm seeing here is this is a  
15 representative sample of -- because the competitive space in  
16 display and video advertising is very large. Many  
17 competitors, you know, on the order of hundreds. But this  
18 would have been, you know, a subset of those kind of used to  
19 highlight the competitors in these areas, more on like what  
20 we would consider the media side, which should be, you know,  
21 where our network, what I was talking about before, would  
22 play. And then on ad tech, that would be where, you know,  
23 some of our platform solutions would compete.

24 Q And now, in fact, if I could direct your attention to  
25 the paren at the bottom of the second column where it says

1 "list not exhaustive."

2 A Right. I agree with that.

3 Q "Highly saturated competitive space."

4 Is that consistent with what you were just  
5 explaining for us?

6 A Yes. Absolutely.

7 Q Okay. And also to the much smaller note at the bottom,  
8 it says: "This segmentation is not meant to be entirely  
9 comprehensive."

10 A Right.

11 Q "Competitors here are representative only, and they've  
12 been selected for analysis based on size of threat," and so  
13 on; do you see that?

14 A I do. I see that.

15 Q Okay. And is that consistent with what you just  
16 explained for us?

17 A Yeah. That's very consistent with what I just said.

18 Q Okay. And is this competitive analysis, at least in  
19 the summer of 2015, consistent with your experience of the  
20 competitive landscape while you were in the Google display  
21 ads business?

22 A It certainly is. I was saying before, the shape of  
23 which competitors were strongest at any given point in time  
24 certainly evolved over my tenure. This feels accurate to  
25 me.

1 Q During your time in the display business at Google,  
2 Mr. Bender, was there ever a point in time in which the  
3 competitive landscape felt less competitive and not more  
4 competitive?

5 A No.

6 Q So I now want to switch topics since some portion of  
7 your direct examination was talking about AWBid or cross  
8 exchange bid; do you remember that?

9 A I do. Yes.

10 Q Okay. Now, at Google when a product is piloted or  
11 launched in full, is there a documentation called a products  
12 requirement document or PRD?

13 A Yes, there usually would be.

14 Q Okay. And is that customary and the practice at  
15 Google?

16 A Yeah. I would say broader than Google, software  
17 development techniques use PRDs, and they were used at  
18 Google.

19 Q So I want to direct your attention to DTX 129, and,  
20 again, hopefully tab 4 in your binder.

21 A Okay.

22 THE COURT: Any objection to Defense 129?

23 MR. FREEMAN: We do object to this, Your Honor, on  
24 hearsay grounds. It did not appear to be written by  
25 Mr. Bender. His name appeared nowhere on this document as

1 far as I can see.

2 THE COURT: Have you seen this document before?

3 THE WITNESS: I have.

4 THE COURT: I mean, not because you're getting  
5 ready for litigation. But, I mean, during your course at  
6 Google, do you --

7 THE WITNESS: I don't recall.

8 THE COURT: Have you seen documents like this?

9 THE WITNESS: Certainly.

10 THE COURT: I'm going to allow it in.

11 Overruled. Go ahead.

12 (Defense Exhibit Number 129 admitted into evidence.)

13 BY MS. RHEE:

14 Q So now before we look at just some specific portions of  
15 this document, Mr. Bender, based on your direct examination,  
16 I take it that you were a proponent of AWBid; is that right?

17 A I was, and my views did evolve over my time.

18 Q That's exactly what I was going to follow up on.

19 When you say that your views about AWBid, despite  
20 being a proponent throughout, evolved over time.

21 Can you explain to the Court why they evolved?

22 A I'd say, to start, when you're operating a buy-side  
23 network, there's a naive idea that incremental inventory is  
24 a good thing. And I would say that's true, but not true if  
25 that inventory is spammy or fraudulent or, you know,

1 nefarious in some way. And, you know, I would say that was  
2 part of my education as we were pursuing this pilot was  
3 to -- you know, to understand the work that we were required  
4 in order to try to run incremental inventory sources that  
5 potentially had those types of issues.

6 Q So if I could direct your attention to page 3 of this  
7 document under Roman Numeral V, brand safe protections; do  
8 you see that?

9 A Yeah.

10 Q And you see as part of this PRD to launch the AWBid  
11 pilot, there is an explanation that AWBid will require a  
12 brand safe list of domains and publishers to protect GDN for  
13 low quality or unsafe content; do you see that?

14 A I do.

15 Q And why is that?

16 A Well, the expectation of advertisers and marketers that  
17 are running campaigns on the network was that they would run  
18 efficient and effective campaigns that would run on  
19 brand-safe high-quality inventory. And so it was important  
20 that we solve that issue on their behalf.

21 Q And just to back up so the Court can maybe understand  
22 the context here.

23 Why is it easier to ensure when it's entirely  
24 contained within Google, within the network, to provide  
25 quality and safety of the inventory for your advertisers

1 versus integrating to a third-party exchange?

2 A So I'm not an expert at the art of brand safety, but I  
3 can give a high-level, which is --

4 MR. FREEMAN: Your Honor, I'm going to object on  
5 hearsay grounds. He just said he does not know. He has no  
6 personal knowledge.

7 THE COURT: Do you have personal knowledge?

8 THE WITNESS: Sure. I've been in meetings where  
9 this is discussed. I'm just -- I'm not a technical expert  
10 in this space.

11 THE COURT: Given his experience in the industry,  
12 I'm going to allow him. He's not an expert, he's just a  
13 person who's got experience in the industry talking about  
14 his experience and his understanding.

15 Overruled. Go ahead.

16 BY MS. RHEE:

17 Q If you could please --

18 A Sure.

19 Q -- answer for the Court.

20 A Yeah. So basically in order to be able to detect  
21 whether fraud or spam is happening on an inventory, you need  
22 to be able to evaluate that inventory. And so the teams  
23 underneath ad quality and brand quality worked on these  
24 types of kind of filters and sniffers to be able to evaluate  
25 the inventory that was flowing through either of the ad

1 exchange or through AdSense, and that would be capability  
2 that was built out over time.

3 That capability didn't exist as it related to  
4 inventory that was available on these third-party exchanges.  
5 So those capabilities of being able to do the spam  
6 filtration, being able to detect fraud, et cetera, that was  
7 an incremental engineering build that was required in order  
8 to kind of ensure that same kind of level of safety and  
9 quality.

10 Q So with respect to the AWBid pilot launch, in light of  
11 what you just said, Mr. Bender, was there a reason, and, if  
12 so, why focus on remarketing?

13 A Yeah. Well, as mentioned earlier, you know, part of  
14 the value of remarketing is finding these browser IDs very  
15 shortly after they've potentially abandoned the shopping  
16 cart. That's the most likely time that they will then  
17 return to complete that purchase.

18 So there was a high value of being able to see  
19 browser IDs in more places to that remarketing use case, and  
20 so that kind of value tradeoff -- understanding that there  
21 would be incremental work in order to support it -- it was  
22 deemed valuable enough to do this for this targeting type.

23 Q So now I want to fast-forward after the pilot launch to  
24 DTX 230, and that is tab 5 in your binder.

25 THE COURT: Any objection to 230?



1 MR. FREEMAN: Yes, Your Honor. Objection on  
2 hearsay and double hearsay grounds. There's comments all  
3 throughout this attributed to no one.

4 MS. RHEE: So if I may lay a foundation, Your  
5 Honor.

6 THE COURT: Go ahead.

7 BY MS. RHEE:

8 Q You see in your binder DTX 230 is titled AWBid  
9 Publisher Quality Investigation; is that right?

10 A I see that, yes.

11 Q Now, when you were at Google, did you and your team, or  
12 the team that you oversaw, routinely conduct investigations  
13 into the quality of ad traffic and then actually report out  
14 the findings of that investigation in the ordinary course of  
15 running your business?

16 A That absolutely would have been the case, and  
17 especially for a project like AWBid.

18 Q And when you say "especially for a project like AWBid,"  
19 why is that?

20 A Well, there was a concern that the inventory that was  
21 available on these third-party exchanges had higher degrees  
22 of spam, higher degrees of fraud, and understanding that  
23 better would have been important for us to be able to  
24 determine the work that we would need to put in in order to  
25 safely run on that supply.

1 MS. RHEE: Your Honor, at this time Google would  
2 seek to admit DTX 230.

3 MR. FREEMAN: We still object, Your Honor.  
4 There's still a double hearsay problem.

5 THE COURT: Yeah. Yeah. I'm going to sustain the  
6 objection for this one.

7 BY MS. RHEE:

8 Q So now I'd direct your attention to DTX 545 then. And  
9 right now I think we don't have it in the binder, but if we  
10 might pull it up on the screen.

11 A Okay.

12 MS. WOOD: Do you have a copy for us, Counsel?

13 MS. RHEE: I do in --

14 THE COURT: Defense 545?

15 MS. RHEE: Yes. DTX 545.

16 THE COURT: And that's not in this book; is that  
17 right?

18 MS. RHEE: No, Your Honor. Given the Court's  
19 ruling, I'm going to use another document.

20 THE COURT: All right. I need to see it as well.

21 MS. RHEE: Yes, of course.

22 THE COURT: Is there any objection to 545?

23 MR. FREEMAN: Yes, Your Honor. A similar  
24 objection. There are notes in the summary on page 2 that  
25 are not attributed to anyone, including Mr. Bender. A

1 double hearsay problem.

2 MS. RHEE: Your Honor, first of all, we're seeking  
3 to admit the slide itself, and we can lay a foundation.

4 THE COURT: Well, see if you can lay a foundation.

5 BY MS. RHEE:

6 Q You see the slide that is DTX 545, Mr. Bender?

7 A I do.

8 Q Now, is this something that you actually had direct  
9 knowledge and participation in?

10 A I would have been on top of these types of materials,  
11 yeah.

12 Q And, in fact, was this an update to your boss?

13 A I --

14 MR. FREEMAN: Objection, Your Honor. Leading in  
15 terms of foundation.

16 THE COURT: What does the word "custodian" mean?  
17 Not the people who are cleaning the building. So tell me  
18 why you are using that term.

19 THE WITNESS: I -- you can --

20 MS. RHEE: No. No. No. This is a question to  
21 you.

22 THE WITNESS: Oh, for me.

23 I believe this would have been sourced out of my  
24 collection of documents. So this would have been in my  
25 document file that the legal teams have access to.

1 THE COURT: So I'm not even sure I understand  
2 this. You've got a time created. Something was created in  
3 October of 2017, and then there's -- something was modified  
4 in March of 2018.

5 I mean, have you seen this kind of structure  
6 before on communications at Google?

7 THE WITNESS: Yeah. This appears to be metadata  
8 about the file.

9 THE COURT: Right. So the -- it was initially  
10 created in 2017, and several months later there was some  
11 additions made to it or corrections?

12 THE WITNESS: That's possible.

13 THE COURT: I'm going to sustain the objection.

14 MS. RHEE: So using the documents just to refresh  
15 recollection and not to move them in --

16 MR. FREEMAN: Objection, Your Honor.

17 THE COURT: We haven't got a foundation yet. You  
18 haven't asked the question to which he was unable to answer.  
19 All right.

20 Sustained.

21 BY MS. RHEE:

22 Q You previously just testified to having a particular  
23 concern with respect to the quality of ad traffic that was  
24 coming in from third-party exchanges after the AWBid pilot  
25 launch, just to level set to where we dropped off before all

1 of the more technical discussion about documents; do you  
2 remember that?

3 A That's correct. Yes, that's correct.

4 Q Okay. Now, do you recall having your team do some  
5 investigation around the quality of ad traffic that was  
6 coming through the third-party exchanges after the AWBid  
7 launch?

8 A That would have been something that we reviewed, yes.

9 Q And what, if anything, do you remember about those  
10 investigative findings or what the team was seeing after the  
11 AWBid pilot launch with respect to the quality of inventory  
12 coming in from third-party exchanges versus the quality of  
13 inventory that already existed on the network?

14 A So my recollection serves that there were instances of  
15 spam and fraud detected in those additional source of  
16 inventory, and in order to protect our customers, there  
17 would be incremental engineering work required in order to,  
18 you know, ensure that safety.

19 Q And when you say that there were instances, is this a  
20 one-off? A two-off? One single piece of inventory here?  
21 One single inventory there?

22 A Yeah, no. My recollection would be that it was fairly  
23 widespread.

24 Q Now, when you left the display ad business in 2019, I  
25 believe your testimony on direct is you left in November; is

1 that right?

2 A That's correct.

3 Q And after you left, even though you stayed at Google  
4 for a little while longer, did you have any involvement in  
5 the display ads business?

6 A No.

7 Q So I want to direct your attention to what the  
8 government showed you with respect to a 2016 chat. Do you  
9 recall that Q and A with the government attorney?

10 A I -- we talked about a bunch of things, but I'll take a  
11 look.

12 Q Just to be helpful, it's PTX 1736.

13 A Okay.

14 MS. RHEE: If we can just again highlight the date  
15 at the top there. Okay.

16 BY MS. RHEE:

17 Q In 2016, Mr. Bender, what, if anything, did you know  
18 about any DOJ or state attorney general investigation?

19 A I wouldn't have.

20 Q And to your knowledge, are you aware of whether or not  
21 there even was one?

22 A No.

23 Q And in this communication with Mr. Shodjai here when  
24 you wrote the chat, was there any intention on your part to  
25 keep the subject of the chat away from regulatory scrutiny

1 or investigative discovery?

2 A No.

3 Q And finally just with respect to Mr. Shodjai, at that  
4 point in time, how many employees reported to you?

5 A On the order of 50.

6 Q And when you were part of the display ads business, at  
7 any point in time did all of the employees who reported to  
8 you agree with each other?

9 A No.

10 Q And when employees wrote to you with their thoughts,  
11 what, if anything, did that reflect of your views?

12 A It would have been information to me, but, you know,  
13 like I said earlier, anything substantive would have been  
14 discussed in other formats, whether it was a document or a  
15 meeting, to, you know, make decisions about.

16 Q And at Google when you were there, especially in the  
17 display ads business, was there a robust discussion about  
18 topics of disagreement?

19 MR. FREEMAN: Objection, Your Honor. Vague.

20 Robust.

21 THE COURT: No. We know what robust means. No.  
22 Overruled.

23 BY MS. RHEE:

24 Q If you could answer the question.

25 A Yeah, I would say so. We had very active discussions

1 of ranges of options, you know, some of which were never  
2 pursued.

3 Q Now, I want to direct your attention to this document  
4 that the government talked to you at length about in the  
5 direct examination, and that is PTX -- apologies, let me  
6 find it -- 1814.

7 Now if we could start at the very top again just  
8 so we can orient everybody to the date.

9 A Yep.

10 Q In January of 2009, how long had you been at Google?

11 A I believe we joined in April 2008. So just shy of a  
12 year.

13 Q So if I've done my math correctly, is that eight months  
14 or so?

15 A Sounds right.

16 Q Okay. And when you answered, you said that "we" had  
17 been at Google just shy of a year or eight months.

18 Who's the "we" in that answer?

19 A Oh. Well, anyone who would have come across with the  
20 acquisition. So that would include, you know, someone like  
21 David.

22 Q Okay. And on direct examination, you talked about how  
23 Mr. Rosenblatt, when he came over to Google at this time  
24 eight months in, I believe you said on direct, he did not  
25 have an operational role; is that right?



1 A That's my recollection, yeah.

2 Q Okay. What do you mean by an operational role?

3 A So my understanding is he didn't have a team, nor was  
4 he, you know, responsible for day-to-day decisions for the  
5 business. But he -- I think he was there to lend advice to  
6 ensure that the acquisition, you know, was successful until  
7 he left.

8 Q And when did he leave, if you remember?

9 A I don't recall, but I -- it's likely around the year  
10 mark of the acquisition. So it would have been likely  
11 around April of that year.

12 Q Okay. So after this email, is it your best  
13 recollection that he left very shortly thereafter?

14 A Yeah, that's fair.

15 Q Okay. Now, directing your attention to just what you  
16 wrote in this email, you said: "It's a long read, but when  
17 you have a chance, it's worthwhile to get his perspective."

18 Who is the "his" in that sentence that you wrote?

19 A That would refer to David. So it would be David's  
20 perspective.

21 I would just note, it seems like I also attached a  
22 recent analyst's report, which would be yet another  
23 perspective, the idea being giving some of my team members  
24 some additional perspectives in advance of a meeting that I  
25 was having the following week.

1 Q And when you say another attachment, is that the  
2 attachment that the government referred to in the  
3 examination that they did not take you through?

4 A I -- that may be the case.

5 Q Okay. And --

6 MS. RHEE: I think with that, Your Honor, I would  
7 pass the witness back.

8 THE COURT: All right. Any redirect?

9 MR. FREEMAN: Yes, Your Honor.

10 Before I get started, there was an insinuation as  
11 if we were hiding some part of 1814, so we move to admit all  
12 of it, Your Honor, including the attachments.

13 THE COURT: Any objection? Because you did open  
14 the door, to some degree.

15 MS. RHEE: No objection, Your Honor.

16 THE COURT: All right. So we'll change the  
17 ruling. So all of 1814 is in evidence.

18 (Plaintiffs' Exhibit Number **1814** admitted into evidence.)

19 MR. FREEMAN: Thank you, Your Honor.

20 REDIRECT EXAMINATION

21 BY MR. FREEMAN:

22 Q I want to start with one of the exhibits you were  
23 talking about on cross-examination, DTX 1508. It should be  
24 the first tab of the binder that you were given.

25 A Yeah. I got it.

1 Q The first one is starting with that first page, which  
2 we talked about before.

3 Your name is nowhere near -- I'm sorry. Not on  
4 the custodian field?

5 A That is correct, yep.

6 Q Nor is your name on the all custodian field?

7 A Correct.

8 Q And, in fact, throughout this entire exhibit -- which I  
9 believe is 22 pages -- your name does not appear anywhere;  
10 right?

11 A I haven't reviewed the full document, but that may be  
12 the case.

13 Q Okay. We can look at the first opening slide.

14 Your name doesn't appear as the author of this  
15 particular slide deck, and there's no author on it; right?

16 A That's true. Yep.

17 Q Okay. And then, in particular, you were shown page 8  
18 of this exhibit; right? And you were --

19 A Yes, I recall that, yep.

20 Q And you walked through various questions about this  
21 particular graph that we're talking about; right?

22 A Yep.

23 Q And in particular, there's questions that this graph  
24 shows a direct line from Google Ads to non-Google; do you  
25 see the blue line?

1 A I do.

2 Q That is not -- that pattern is not the same in terms of  
3 quantity of inventory; right? Of the other lines.

4 A I believe that's true.

5 Q And it makes no distinction, this graph, between  
6 remarketing inventory and all other buckets of inventory;  
7 right?

8 A That's fair. Yep.

9 Q So it overly simplifies it to show all buckets of  
10 inventory as the same?

11 A That's your characterization.

12 Q I'm asking you what distinction are they making.

13 A It's not my graphic, so I don't know.

14 Q Well, you testified in great detail about it in  
15 cross-examination, and now you don't know?

16 A What I was saying is, I could identify that DV3 does  
17 run on non-Google and AdMob and AdX and AdSense. Just the  
18 words on this page, it's helpful from that standpoint, but I  
19 wasn't asked about any other detail, of which I don't claim  
20 to have further detail.

21 Q And, in particular, if you could then go to DTX 549,  
22 which is tab 2. Just starting on the first page. This is a  
23 slide deck, right, that was marked confidential and  
24 privileged; right?

25 A Okay.

1 Q Correct?

2 A It says it there, yes.

3 Q And was it Google's practice to mark slide decks as  
4 confidential and privileged even though there were business  
5 decisions being discussed?

6 A I don't think so.

7 Q You don't think so.

8 So then take your time in DTX 549 and show me  
9 where a legal question is being asked.

10 MS. RHEE: Your Honor, this is the exhibit that  
11 the government objected to for which we were not able to ask  
12 any questions of the witness.

13 MR. FREEMAN: I don't believe that's correct.

14 MS. RHEE: I apologize, Your Honor.

15 THE COURT: That's not, yeah.

16 BY MR. FREEMAN:

17 Q Maybe we can go to page 3.

18 The agenda for this particular slide deck says:  
19 Evolution of value proposition, 2017 revenue, customers,  
20 competitive landscape, products, and display strategy and  
21 forecast; right?

22 A I see that, yeah.

23 Q Right. And nothing on there says legal or legal  
24 question?

25 A Not on this agenda side, that's correct.

1 Q And so when you said it was not the practice at Google  
2 to mark things as confidential and privileged for business  
3 decisions, this is just the anomaly; is that what you're  
4 saying?

5 A That is not what I said.

6 Q Okay. What did you say?

7 A I don't believe I said much. I can talk to -- the  
8 training that happened would have helped educate people  
9 about the appropriate use of attorney/client privilege. It  
10 may or may not have been universally adopted.

11 Q And the training you're talking about was called  
12 Communicate With Care; is that what you're referring to?

13 A Yep.

14 Q And the instructions you got through Communicate With  
15 Care was to mark things as confidential and privileged for  
16 sensitive topics?

17 A As far as I recall, it would have been largely in two  
18 buckets. One is if you have a question for a lawyer, you  
19 would try to ensure that the appropriate lawyer was on the  
20 email, and insofar as that was legal kind of communication,  
21 that would be privileged.

22 There were other cases when there was work product  
23 that was directed by the legal team, and that would be  
24 another case where I think attorney/client privilege would  
25 have been warranted.

1 Q But then there's a third bucket, as indicated in  
2 DTX 549, of marking things privileged where the agenda were  
3 business decisions; right?

4 A Again, you asked me about the training. That's what I  
5 recall from the training.

6 Q Okay.

7 A So I don't believe the -- I don't remember if the  
8 training included anything like what you're talking about.

9 Q In particular, if you can go to page 14. There's a pie  
10 graph you should see.

11 A Uh-huh.

12 Q And do you see AWBid there on the right-hand side of  
13 6.1 percent?

14 A I do.

15 Q So that line that you were shown in the previous  
16 exhibit -- and we can pull it up if you want in 1508 -- that  
17 line only represented 6.1 percent of AdWords display  
18 inventory sources?

19 A The way this reads to me is that this is a spend  
20 figure, not necessarily an inventory quantity figure.

21 Q So the spend figure of AWBid was only 6.1 percent;  
22 right?

23 A That's what's written here, yep.

24 Q And then going then to the graphic that you spent some  
25 time on on page 24 of DTX 549.

1 A Yes, I see that.

2 Q First off, you didn't make this graph; right?

3 A I don't believe I did.

4 Q And you don't remember any of the underlying data to  
5 support this graph; right?

6 A No. I see the footnotes the same as you.

7 Q And this graph that you testified about, these are mere  
8 projections; right? Not actual statistics?

9 A If my recollection serves, this would have included  
10 actual data per these sources up through maybe 2017, and  
11 then the projection would be beyond that.

12 Q So this is only Google's in-house projection of the  
13 market in 2019 and in 2020?

14 A I believe it would be projections including 2018 as  
15 well.

16 Q So the last three years on the right-hand side of the X  
17 axis, if you're with me, are projections, not data?

18 A That sounds -- that sounds right based on my  
19 understanding.

20 Q And then moving to DTX 259, in particular page 4 you  
21 spent some time on.

22 A Okay. Yeah.

23 Q And there were some questions related to -- I believe  
24 it was phrased in the questions and on the slide as the  
25 competitive landscape; right? Correct?



1 A That's what it's called on the slide, yes.

2 Q And you stated that this was a fair representation of  
3 the competitive landscape as you understood it?

4 A I believe if we look at the record, I was saying the  
5 set of competitors was much larger than what this slide  
6 includes. But this is a, you know, representative sample at  
7 the time, and that feels fair to me.

8 Q All right. But you didn't make this slide; right?

9 A No.

10 THE COURT: What do you understand the term "media  
11 agnostic" to mean?

12 THE WITNESS: So in my mind, this would be more of  
13 a -- the ad tech players. So more similar to that platform  
14 that I was talking about earlier where they weren't  
15 necessarily managing media themselves, but other media  
16 players were using their technology to enable ad serving in  
17 some form.

18 THE COURT: Versus the tech titans in the first  
19 column?

20 THE WITNESS: Yeah. The first column,  
21 constituency would have had their own media to manage as  
22 well.

23 BY MR. FREEMAN:

24 Q Just to follow up on the Court's question, what do you  
25 understand, in the first column under tech titans, garden

1 potential, what does that mean?

2 A There's a term that gets used in a variety of ways, the  
3 distinction between the open web and a walled garden. A  
4 walled garden can mean a variety of things, actually.

5 But in some cases, it's a set of media that you  
6 can only access through a log-in, would be an example of --  
7 it's not on the open web, it's not necessarily searchable on  
8 the open web. The purchase of that inventory by buyers may  
9 also be a proprietary kind of user interface like we were  
10 talking about with Facebook as an example.

11 Q Your understanding of the competitive landscape as you  
12 testified on cross was much different than you testified  
13 three months ago in June of 2024; right?

14 A I -- I don't recall.

15 Q Do you recall just in June of this year stating that  
16 you didn't know how the technology of header bidding worked;  
17 right?

18 A I -- yeah. I believe I said something similar today.

19 Q And you stated that you didn't know who participated in  
20 header bidding?

21 A Off the top of my head, that's correct. That would  
22 have been publishers who were implementing that, which is a  
23 different set of folks in general from some of the names  
24 listed on this slide.

25 Q Well, in particular when we talk about parts of this

1 slide, you were asked what -- whether other exchanges are  
2 non-Google exchanges, to which you said you didn't know;  
3 right?

4 A I don't know. I don't recall the exact question I was  
5 asked.

6 Q Sure.

7 A I was trying to ask it -- and answer, you know,  
8 factually based on my information on that day.

9 Q So you didn't know who participated in header bidding  
10 three months ago?

11 A Yeah. Off the top of my head, I couldn't tell you the  
12 list of publishers that were participating.

13 Q You didn't know whether Facebook allowed advertisers to  
14 buy inventory on their website three months ago; right?

15 A That doesn't sound right, but we could take a look at  
16 the transcript.

17 Q Okay. So behind you is a binder -- a different binder.

18 THE COURT SECURITY OFFICER: This one, Counsel?

19 MR. FREEMAN: Yeah. The one that says deposition  
20 testimony.

21 BY MR. FREEMAN:

22 Q There's two tabs of your depositions, the one that says  
23 MDL deposition tab.

24 A Yeah.

25 Q And we'll start with -- on page 55.

1 A Yep.

2 Q On line 17 you were asked a question: "What categories  
3 PubMatic -- what categories are PubMatic and Rubicon in"; do  
4 you see that?

5 A Yep. I do.

6 Q Does reading your answer refresh your recollection of  
7 you didn't know whether they were exchanges; they were just  
8 merely on the sell-side?

9 A Yeah. I said they were on the sell-side, and I didn't  
10 recall if they had an exchange.

11 Q And then staying on that page on page 55 at the  
12 beginning -- at the very top, you see you were asked about  
13 Criteo?

14 A Uh-huh.

15 Q "Is Criteo a rival exchange?" Do you remember what you  
16 said there?

17 A I could read it back. It says: "I wouldn't  
18 characterize them that way."

19 Q And then it says: "Are they a rival ad-buying tool?"

20 A And I stand by this answer: "They were focused, as far  
21 as I can recall, on helping buyers reach their campaign  
22 objectives."

23 Q And then in particular: "Would you describe Criteo as  
24 an ad-buying tool?" And your response is you didn't know?

25 A Yeah. I said: "I think they were another solution

1 that advertiser marketers used to help reach their campaign  
2 objectives."

3 Q Yeah. So you didn't know what tools Criteo offered  
4 three months ago?

5 A They offered a solution. You can call it a tool. But  
6 I didn't know their specific tools. Advertisers would use  
7 Criteo to try to reach their business objectives. They were  
8 very competitive in their remarketing space.

9 Q Okay. And going back to page 49.

10 A Uh-huh.

11 Q Starting on line 19, you were asked a question:  
12 "Facebook doesn't allow advertisers to use GDN to buy web  
13 inventory on Facebook's page; is that right?" And you said  
14 you didn't know; right?

15 A Yeah. I think that was a question of whether GDN  
16 itself could buy on Facebook, and my answer is I'm not sure.  
17 Yeah.

18 Q All right. So even though you're in charge of the  
19 buy-side, including GDN for years, your testimony three  
20 months ago is that you didn't know whether you could buy  
21 Facebook inventory?

22 A I'd say over my tenure, things evolve. It's possible  
23 that some of that inventory was available in one of these  
24 new places that we bought, and I wouldn't want to testify  
25 inaccurately.

1 Q Right. So three months ago you testified you didn't  
2 know; right?

3 THE COURT: Counsel, it's been repeated. Move on.

4 MR. FREEMAN: Understood.

5 BY MR. FREEMAN:

6 Q Moving on to you answered a lot of questions about  
7 brand safety in particular to AWBid; right?

8 A Uh-huh.

9 Q But there were spam problems or ad fraud problems  
10 within Google's products; right?

11 A There would have been.

12 Q Right. So there was problems in spam coming through  
13 Google's AdX?

14 A That sounds right.

15 Q Are you familiar with an actor group called 3Ve, but  
16 spelled 3-V-E?

17 A Not offhand.

18 Q And going back to PTX 587.

19 A Uh-huh.

20 Q This is an email exchange we talked about discussing  
21 header bidding revenue going outside the ecosystem?

22 A Uh-huh.

23 Q And so when you, Mr. Bellack and Mr. Shodjai were  
24 discussing in real time the problems with header bidding on  
25 third-party exchanges, there's no discussion at all about

1 brand safety; right?

2 A That would have been well known, but it's not here in  
3 the doc.

4 Q There was no discussion about spam inventory being on  
5 third-party exchanges?

6 A Not in this email.

7 Q And the only problem that the three of you leadership  
8 roles at Google, was the problem was that header bidding  
9 exists; right?

10 A I don't agree with that.

11 Q You don't agree that, in real time, that's what was  
12 said?

13 A I -- we can see that that's what Payam wrote.

14 Q That's right.

15 A But I can also say I don't agree with that.

16 Q But there's nothing within this email that you  
17 indicated when you forwarded to Payam that you disagreed  
18 with any fact?

19 A His -- this is a response from Payam to me.

20 Q There's nothing in PTX 587 that talks about what you're  
21 talking about; right?

22 MS. RHEE: Your Honor, at this point that's --

23 THE COURT: Sustained.

24 BY MR. FREEMAN:

25 Q You talked about briefly chats on cross-examination.

1           Just how many chats did you intentionally preserve  
2 after you were given a litigation hold in 2019?

3       A     Well, I would note I believe I got the litigation hold  
4 in October, and I left the ads team in November. So from --

5       Q     That's not my question.

6       A     That context is important.

7           I was not on the ads team for very long. And, as  
8 previously noted, I didn't generally engage in substantive  
9 conversations over chat. So I don't recall toggling it on,  
10 because if I -- you know, I would be following the  
11 instruction, but I also would have generally not been  
12 engaging in substantive chat.

13       Q     So you don't recall whether you ever saved anything  
14 after receiving the litigation hold of chats?

15       A     I think I've already answered that question.

16       Q     I don't think you have.

17           THE COURT: We're not going to have an argument.

18           Just so we're clear, when did you get the  
19 litigation hold?

20           THE WITNESS: I believe it was October of 2019.

21           THE COURT: And you left in November of 2019?

22           THE WITNESS: That's correct.

23           THE COURT: All right. From the time you got the  
24 litigation hold to the time you left, did you do anything to  
25 change the default option on your system?



1 THE WITNESS: I don't believe I did.

2 THE COURT: So you didn't just switch -- as I  
3 understand, it's basically switching a button to go from  
4 erase, or whatever it's called, to history, you didn't do  
5 that?

6 THE WITNESS: No. I would have -- I left the  
7 defaults as is.

8 THE COURT: Why?

9 THE WITNESS: In general, I wasn't engaging in  
10 substantive conversations over chat. And so the way I would  
11 use chat, because we were geographically dispersed, it's  
12 more like bumping into someone in the hall and saying, hey,  
13 we should talk.

14 THE COURT: Yeah. But didn't the litigation hold  
15 say save everything?

16 THE WITNESS: I believe it said if you engage in  
17 substantive conversation, then you should save it.

18 THE COURT: Down the road, for the record, you can  
19 give me the litigation hold documents; all right?

20 MR. FREEMAN: Yes, Your Honor.

21 THE COURT: What the instructions were to the  
22 people.

23 MR. FREEMAN: Yes, Your Honor.

24 THE COURT: All right.

25 MR. FREEMAN: I have nothing further, Your Honor.

1 THE COURT: All right. Is there any recross?

2 MS. RHEE: No, Your Honor.

3 THE COURT: All right. This is the perfect time,  
4 we'll take our morning break.

5 Does anyone anticipate calling this witness again  
6 during the course of the trial?

7 MR. FREEMAN: No, Your Honor.

8 THE COURT: How about from Google's standpoint?

9 MS. RHEE: No, Your Honor.

10 THE COURT: All right. Then, Mr. Bender, you are  
11 now excused as a witness. That means you may stay and watch  
12 the proceedings or leave, but you're not to discuss your  
13 testimony with any witness who has not yet testified.

14 All right. And we'll take our morning break.  
15 We'll start up again at 11:30. Thank you.

16 (A recess was taken.)

17 THE COURT: All right. Are we all set for the  
18 next witness?

19 MR. VERNON: Good morning, Your Honor. Jeff  
20 Vernon for the United States.

21 Plaintiffs call Professor Ravi.

22 THE COURT: All right.

23 THE DEPUTY CLERK: Can you raise your right hand.

24 Thereupon,

25 RAMAMOORTHY RAVI,

1 having been called as a witness on behalf of the plaintiffs  
2 and having been first duly sworn by the Deputy Clerk, was  
3 examined and testified as follows:

4 (Time noted: 11:32 a.m.)

5 THE DEPUTY CLERK: Thank you.

6 DIRECT EXAMINATION

7 BY MR. VERNON:

8 Q Good morning, Professor Ravi.

9 A Good morning.

10 Q Can you please describe your professional background.

11 A I'm a professor of operations research and computer  
12 science at Carnegie Mellon University. I have an  
13 undergraduate degree in computer science from the Indian  
14 Institute of Technology at Madras. And I have a master's  
15 and doctoral degree, both in computer science, from Brown  
16 University. And I'm currently broadly working in the area  
17 of discrete optimization.

18 Q And what is discrete optimization?

19 A Discrete optimization is an area of applied  
20 mathematics, computer science that has to do with the  
21 optimal allocation of discrete or whole number decisions.

22 So one example would be deciding how many truck  
23 drivers you would need to satisfy all the deliveries in a  
24 particular county. So that's a discrete decision. So  
25 that's an example.

1 Q And what is the relationship between discrete  
2 optimization and auction design?

3 A Many of the conducts in this case involve solving  
4 discrete optimization problems. So there is a lot of  
5 application of discrete optimization broadly in digital  
6 advertising as well.

7 Q And what consulting work have you done?

8 THE COURT: Well, is there any objection about the  
9 qualifications of Dr. Ravi?

10 MR. ISAACSON: No, Your Honor.

11 THE COURT: All right. Are you moving him in as  
12 an expert?

13 MR. VERNON: Yes, Your Honor.

14 THE COURT: In the field of discrete optimization?

15 MR. VERNON: That's right.

16 THE COURT: All right. Then he is so qualified.  
17 Just give me the exhibit number so it's in the record and  
18 we'll move on.

19 MR. VERNON: You mean the exhibit of his CV?

20 THE COURT: Yes.

21 MR. VERNON: It's 1780. The United States would  
22 move to admit PTX 1780.

23 THE COURT: Any objection to 1780?

24 MR. ISAACSON: No objection.

25 THE COURT: All right. It's in.

1 (Plaintiffs' Exhibit Number 1780 admitted into evidence.)

2 BY MR. VERNON:

3 Q Let's turn to your opinions in this case, Professor  
4 Ravi.

5 What aspects of Google's display auctions did you  
6 analyze?

7 A I analyzed several conducts, and among them were first  
8 look, last look, Project Poirot and UPR.

9 Q How did you analyze those conducts?

10 A I reviewed the PRDs or design documents that were  
11 discussed earlier, dozens of them. I then also reviewed the  
12 discussions surrounding them, including experiments  
13 conducted on various portions of them. I also looked at  
14 interim documents that converted these design documents into  
15 sort of pseudocode, code that can be then converted into  
16 software. And I also looked at several snapshots of  
17 Google's source code implementing these conducts.

18 Q Just at a high level, how did you use your computer  
19 science background in the work that you just described?

20 A Many of these design documents involved formulations of  
21 these discrete optimization problems. They also involved  
22 having to read through the pseudocode that implements the  
23 details of how the algorithms were actually coded. And also  
24 my computer science background was very useful in reading  
25 and understanding the source code that implemented the logic

1 in these documents.

2 Q And can you summarize your conclusions with respect to  
3 the four conducts that you mentioned?

4 A The conducts that I mentioned I concluded that, broadly  
5 speaking, they were not implemented in an optimal way to  
6 sell these impressions on behalf of Google's customers. I  
7 also concluded that these design decisions typically  
8 advantaged Google's own products and disadvantaged the other  
9 products that were available in the ad tech stack.

10 Q Before we discuss this conduct, let's discuss a few  
11 quick points about auctions.

12 First, why are auctions useful in selling  
13 impressions in this business?

14 A So auctions are broadly useful when you don't know what  
15 the price or the value of an item is. So when you're  
16 selling an impression, which has several characteristics  
17 about it, with unknown value, an auction is a particularly  
18 good way to try to get the best price you can for, and  
19 that's why auctions are relevant to this case.

20 Q Let's walk through the difference between a first-price  
21 and a second-price auction.

22 Starting with the first-price auction, can you  
23 explain what that is?

24 A Yes. We've been through this a few times.

25 A first-price auction is one where bids are

1 solicited, and in this case an impression is given to the  
2 highest bidder. And it's called a first-price auction  
3 because the price that the person pays is the highest price,  
4 the highest bid.

5 Q And can you explain what a second-price auction is?

6 A The same setup. We have bidders bidding, the  
7 impression is still given to the highest bidder, but the  
8 price is the second highest bid in the auction.

9 Q And can you turn in your binder to Demonstrative AA.

10 A Oh, it's here.

11 Q Can you use this demonstrative to explain an example of  
12 the difference between a first-price and second-price  
13 auction?

14 A Yes. In this auction, we see three bidders, A, B and  
15 C. In the first-price auction, the first panel on the left,  
16 the highest bidder, the one who submitted the bid of \$5, A,  
17 wins. And because it's a first-price auction placed, his or  
18 her own bid, that's \$5.

19 In the right panel, it's the same setup, same  
20 bids. The winner and still the highest bidder, A, but now  
21 the price that he or she pays is the second highest bid,  
22 which is the \$3 bid of Bidder B.

23 Q What is a price floor?

24 A A price floor is an additional control mechanism in  
25 this auction. It's a floor below which the seller does not

1 want to sell the item.

2 Q And in a second-price auction, how does the price floor  
3 affect the price that the buyer pays?

4 A So a price floor is a number such that any bid below  
5 that is just rejected. So if the price floor did happen to  
6 lie between that 3 and \$5, then the price that the highest  
7 bidder would pay would be the price floor. So that's how it  
8 sometimes sets the price in a second-price auction.

9 Q So we can set Demonstrative AA aside.

10 Let's discuss first look. Before the emergence of  
11 header bidding, when a publisher used DFP as its ad server,  
12 which exchange typically bids first?

13 A So the way that DFP was set up, AdX, that is Google's  
14 own AdX exchange, would go first.

15 Q And how would that affect publishers' revenue?

16 A It would give them less revenue, because sometimes the  
17 highest valued bidder is not coming through AdX, and AdX  
18 might have bought that same impression for a lower floor  
19 price.

20 Q How would AdX bidding first affect whether impressions  
21 are matched with the advertiser willing to pay the most  
22 amount of money for the impression?

23 A Well, again, if the advertiser who's willing to pay the  
24 most money is further down the line and does not get to win  
25 that impression, this impression is not going to the



1 advertiser that wants it the most. The match is not  
2 efficient.

3 Q And how did AdX bidding first affect exchanges?

4 A It deprived them of even the opportunity to look at the  
5 impressions that AdX already won.

6 Q Let's talk about first look and real time as compared  
7 to static bids. And I think the first question is, what is  
8 a static bid?

9 A A static bid in this context is one that represents an  
10 average price that an exchange is willing to pay. So, in  
11 this case, the static bid would typically be computed as  
12 something like the average revenue or the average number of  
13 impressions.

14 More broadly, a static bid is one that is unable  
15 to take into account the real-time features of this  
16 impression that's being sold. It's just an average price  
17 given to all the impressions of this particular type.

18 Q I think you said a static bid would be unable to take  
19 into account some real-time features of the impression.

20 Can you just give an example of how that would  
21 work in practice?

22 A Sure. So let's say we have a page view, an impression  
23 generated by someone who's interested in buying a car. If I  
24 was going to submit a static bid to buy an impression like  
25 that of that type, that static bid is just an amount that

1 I'm willing to pay for all impressions of that type, and I  
2 wouldn't be able to adjust that static bid up or down  
3 depending on whether I'm talking to or I'm looking at an  
4 impression from someone who's more or less interested. So  
5 it really does not use the power of real-time bidding at  
6 all; it's just an average number that I'm assigning to a  
7 certain slice of impressions I'm interested in.

8 Q And so in contrast to a static bid, what is a real-time  
9 bid?

10 A It is the one that takes into account all this  
11 information coming along with the impression in the form of  
12 user interest, user demographics, the so-called cookie  
13 information, for example.

14 Q So if one exchange is bidding on a real-time basis and  
15 another exchange is bidding on a static basis, which  
16 exchange is more likely to win more valuable users?

17 A Intuitively, the one that is able to take into account  
18 the particulars of that real-time information, and thereby  
19 take into account its value better is able to more likely  
20 win that auction against a static bid.

21 Q And just to back up really quickly, a minute ago you  
22 referred to cookie information.

23 Can you just describe what that is briefly?

24 A So when impressions are sold, they come usually  
25 attached with information that describes what time of day is

1 it, and what is the geographic location, is there any more  
2 information we can gather about the user's interest based on  
3 the other websites that she has visited. So these are the  
4 examples of real-time information that's incorporated that  
5 real-time bid can take into account that a static bid  
6 cannot.

7 Q And when DFP is the publisher ad server, how is the  
8 floor that is sent to AdX calculated?

9 A So when AdX tries to run its auction in DFP, the floor  
10 price is typically the highest static bid submitted by the  
11 other exchanges further down the waterfall.

12 Q And when AdX bids, does it submit real-time bids or  
13 static bid?

14 A AdX runs an auction for its buyers, and they are able  
15 to generate or submit real-time bids.

16 Q How does AdX submitting real-time bids against a floor  
17 that is based on static bids affect who wins the more  
18 valuable impressions?

19 A As we were just saying a little while ago, a real-time  
20 auction, one that is able to provide real-time bids based on  
21 the real-time information, is more likely to win  
22 particularly the more valuable impressions, the ones where  
23 there's real value reflected in that information.

24 Q Can you turn to Demonstrative AB.

25 Can you explain what this demonstrative shows with

1 respect to how the floor is set for AdX?

2 A Yes. This is a demonstrative that shows the waterfall.  
3 And you see the static bids associated with the floor  
4 exchanges on the right, and the highest of them is \$1.06  
5 from PubMatic at the second position. And that highest of  
6 the static bids from the other exchanges is used as the  
7 floor price -- that's what you see in the left-most block,  
8 as the \$1.06 -- and that floor price triggers an auction in  
9 AdX. And you see in the second cylinder marked AdX, that  
10 AdX actually, in that triggered auction, has a bidder who's  
11 willing to pay \$1.07.

12 And just as we discussed a little while ago, since  
13 the floor price of the auction is \$1.06, and assuming  
14 there's no other bidder between \$1.07 and \$1.06, that bidder  
15 in AdX would win that impression for the floor price of  
16 \$1.06. That's what the checkmark corresponds to.

17 Q What does this demonstrative show regarding how first  
18 look affects advertisers?

19 A Well, you also see in red on top of those other  
20 exchanges in the waterfall, the actual amount that the  
21 advertisers in those exchanges are willing to pay. So you  
22 see they have an advertiser willing to pay \$1.10 in  
23 PubMatic, \$1.08 in Index Exchange, but because AdX was able  
24 to win that impression at \$1.06, we never even get to expose  
25 this impression to the others down the line, and, therefore,

100

1 that advertiser with the \$1.10 value or the exchange that  
2 hosts that advertiser don't get to win that impression.

3 Q You can set that aside.

4 And let me step back for one minute. At a high  
5 level for your opinions overall, not just for first look,  
6 are you offering an economic opinion on whether any  
7 particular conduct is "anticompetitive"?

8 A No. I'm an expert in discrete optimization, so my  
9 opinions are about the optimization and the auction design  
10 aspects of this conduct. I'm not offering opinions on  
11 whether this was anticompetitive or not.

12 Q And have you done your own quantitative analysis of  
13 Google's conduct?

14 A I mainly relied on documents that did quantitative  
15 analysis, but I did not personally do any quantitative  
16 analysis on the data produced in this case.

17 Q And why did you not do your own quantitative analysis  
18 based on the data produced in this case in your work?

19 A Well, first of all, I did not have to do that analysis  
20 to arrive at the opinions that I did. And, secondly, I  
21 believe there are other experts who are looking more deeply  
22 at this data and carrying out such analysis. And finally,  
23 to the extent that I rely on results that portray  
24 quantitative analysis in my report, they were just results  
25 from communications within Google about the results of

1 experiments that they perform as a normal course of their  
2 business. So I found them to be pretty reliable.

3 Q With that as a background, did you rely on any  
4 quantitative evidence regarding the effects of first look?

5 A First look, yes, I do have some evidence I examined,  
6 and one of the things I found out was right around 2014,  
7 there was a document that cited that, because of first look,  
8 AdX got to win 53 percent -- that's over half -- of all the  
9 impressions that it got to see from DFP.

10 Q What informational advantages does first look create?

11 A Well, first look, because of the fact that the other  
12 exchanges don't even get to see the impressions that AdX  
13 wins, it supplies AdX with all of the impressions -- or most  
14 all of the impressions that are available for sale by  
15 auctions. So AdX sees the impressions that it won, that  
16 53 percent. It also sees the 47 percent that it lost. And  
17 also it essentially cuts off the signal about that  
18 53 percent from the other exchanges.

19 Q You mentioned before that AdX's floors were based on  
20 the historic average price of other exchanges?

21 A Yes.

22 Q How does first look change that historical average  
23 price over time?

24 A So when -- as we were talking about a little earlier,  
25 the real-time bids from AdX are able to win the more

1 valuable impressions that come up for sale against the  
2 static bids. So as a consequence, the less valuable  
3 impressions go down the waterfall, and those valuable --  
4 less valuable impressions eventually set the floor price,  
5 because that's what's accounted for in the historical -- in  
6 the historical average revenue that they generate. So, as a  
7 result, the floor prices that AdX would face over time would  
8 also go down.

9 Q And so how does the fact that AdX's floor prices go  
10 down over time affect AdX?

11 A Well, it makes it even more likely to win the  
12 impressions that it's facing.

13 Q Please turn in your binder to PTX 551.

14 THE COURT: Is there any objection to 551?

15 MR. ISAACSON: I don't object to it being admitted  
16 for the purpose that the expert's relied on it.

17 MR. VERNON: Your Honor, consistent with our  
18 discussion with the Court earlier in the case, we would like  
19 to move a select number of documents in through Professor  
20 Ravi.

21 This particular document, it is a document written  
22 by Google in the ordinary course. It's also the subject of  
23 a stipulation between Google and the United States under  
24 which Google agreed not to object on certain grounds,  
25 including lack of a sponsoring witness.

1 MR. ISAACSON: We said that from the beginning.  
2 If we stipulated, we stipulated.

3 THE COURT: All right. It's in. It's in.  
4 (Plaintiffs' Exhibit Number 551 admitted into evidence.)

5 BY MR. VERNON:

6 Q Okay. Let's focus on the third paragraph which begins  
7 with -- which has the phrase first look advantage in it on  
8 the first line; do you see that?

9 A Yes.

10 Q Can you explain what this first sentence shows about  
11 first look?

12 A Yes. The first sentence talks about, with the  
13 highlights, the same thing I was just describing a moment  
14 ago, which is the access to the highest value queries, the  
15 more valuable impressions, are a competitive advantage for  
16 AdX.

17 I guess the way that this email phrases it is that  
18 if AdX were to launch into some other server that's not DFP,  
19 then the advantage I was talking about, which is having this  
20 ability to win more of the higher value impressions, would  
21 be destroyed. So that's the way that this particular email  
22 phrases what I characterized earlier.

23 Q If you look at that same paragraph, starting at the end  
24 of the second line, there's a sentence that refers to a  
25 self-fulfilling prophecy; do you see that?



1 A Yes, I see that.

2 Q What do these sentences show regarding the effects of  
3 first look?

4 A Again, these sentences are a different way of  
5 characterizing what I was saying earlier about the AdX floor  
6 decreasing over time. And this sentence says: "Less  
7 valuable inventory begets lower CPMs." That is the price,  
8 lower prices, historical prices. And "publishers react to  
9 those lower CPMs by decreasing the inventory access that  
10 they provide, which begets even lower CPMs."

11 So this is the same effect that we were talking  
12 about where the prices faced by AdX would decrease over  
13 time; it's just phrased in a different way here.

14 Q Are you familiar with the phrase "feedback loop"?

15 A Yes.

16 Q How does the phrase feedback loop apply to first look?

17 A The characterization here of a self-fulfilling prophecy  
18 is just another way of phrasing that feedback loop. So the  
19 feedback loop here is that since AdX wins the more valuable  
20 impressions, the less valuable impressions go down to the  
21 waterfall, the historical prices go down as a consequence,  
22 thereby AdX gets a lower floor, it's able to win even more.  
23 That's the feedback loop that we are talking about here, and  
24 the self-fulfilling prophecy in this email.

25 Q All right. Thank you, Professor Ravi. We can set that

1 document aside.

2 Let's talk about professional work-arounds to  
3 first look. And let's ignore header bidding for the moment.

4 Prior to the emergence of header bidding, were  
5 there any ways in which publishers could call other  
6 exchanges before AdX when DFP was the ad server?

7 A I did find some ways that exchanges could be placed  
8 ahead of AdX, and I remember them being related to using the  
9 so-called sponsorship line items.

10 Q And just briefly, can you explain what the sponsorship  
11 line items were or are?

12 A Sponsorship line items are a part of the direct  
13 channel, the one where the publisher gets into a direct  
14 agreement with an advertiser to sell, and a sponsorship is  
15 one of those kinds of contracts. And a sponsorship,  
16 100 percent for example, would be a direct contract where  
17 100 percent of a certain type of impression would just go,  
18 would be transacted between that pair.

19 Q And based on what you've seen, how common was it that a  
20 publisher would use this work-around where they would put an  
21 exchange in these sponsorship line items?

22 A They were not very common.

23 MR. ISAACSON: Objection. Foundation.

24 THE COURT: Sustained.

25 BY MR. VERNON:

1 Q Can you explain just the purpose of what a sponsorship  
2 line item was?

3 A A sponsorship line item is a way to -- for the -- for  
4 AdX -- for DFP to deliver the direct negotiated contract to  
5 the advertisers.

6 Q Given that purpose of the sponsorship line item, what  
7 effect, if any, would putting an exchange in the sponsorship  
8 line item have on publishers' direct deals?

9 A Well, it would interfere with that, of course.

10 Q Did you review the document from News Corp discussing  
11 News Corp's experiment deprioritizing AdX?

12 A Yes, I did.

13 Q What did News Corp do in that experiment?

14 MR. ISAACSON: I'm going to -- do we have an  
15 exhibit here? I object to --

16 MR. VERNON: We do. We do have an exhibit. It's  
17 placed in the first kind of folder portion of the binder.  
18 It's the exhibit from yesterday that was admitted in  
19 Ms. Layser's deposition.

20 MR. ISAACSON: All right. Thanks.

21 THE COURT: All right. So --

22 MR. VERNON: It's DTX 655.

23 MR. ISAACSON: Is this -- are you saying he  
24 considered this in his report?

25 MR. VERNON: I'm asking him if he reviewed it.

1 MR. ISAACSON: I will object if this is just  
2 something he reviewed for trial testimony and it was not  
3 disclosed in his reports.

4 THE COURT: Ask the question. Let's see.

5 BY MR. VERNON:

6 Q Did you review this document?

7 A Yes, I did.

8 THE COURT: Wait. But when? In context of  
9 preparing your expert report or your deposition during  
10 discovery?

11 MR. VERNON: We're not contending that he reviewed  
12 it before.

13 THE COURT: I'm sorry?

14 MR. VERNON: We're not contending that he reviewed  
15 it before Ms. Layser's testimony yesterday.

16 THE COURT: Well then I think it's an appropriate  
17 objection.

18 MR. VERNON: Okay. We'll move on.

19 THE COURT: Sustained.

20 BY MR. VERNON:

21 Q Let's set this document aside.

22 Does the existence of some work-arounds to first  
23 look change your opinion about first look?

24 A No, it does not.

25 Q Why not?

1 A Because they were not, in my opinion, very effective,  
2 and they were not very prevalent.

3 MR. ISAACSON: I would object to the testimony  
4 about prevalence. That's a factual assertion; not a subject  
5 of expert testimony.

6 MR. VERNON: Let me --

7 THE COURT: What's the foundation for that  
8 statement? How is it that you know that it was not very  
9 effective?

10 MR. ISAACSON: I was objecting to the word  
11 "prevalence," Your Honor. I'm sorry for interrupting.

12 THE COURT: I'm sorry? You should be at the  
13 lectern when you speak.

14 MR. ISAACSON: He can talk about effectiveness,  
15 he's got a technical background. He's also saying  
16 "prevalent," and it's that to which I am objecting. Like  
17 how often this was happening.

18 THE COURT: If he knows. If he's done studies,  
19 yeah.

20 MR. ISAACSON: Right. I'm saying -- but that's  
21 what I'm saying is, you were asking him about effectiveness,  
22 and my objection is to prevalence. That's all I'm saying.

23 THE COURT: All right.

24 MR. VERNON: Can I ask one question on this, Your  
25 Honor?

1 THE COURT: Go ahead.

2 BY MR. VERNON:

3 Q In your rebuttal report, what evidence did you discuss  
4 regarding the prevalence of work-arounds to first look?

5 A Yes. So I did read in one of the expert reports of  
6 Google about the sponsorship line item as one possibility,  
7 and when I looked at all the evidence I had examined, I was  
8 able to find I think at least four or five different  
9 documents and exchanges that characterize that this was not  
10 very effective.

11 For example, I remember one by a Google executive,  
12 Mr. LaSala, I remember this was in my expert rebuttal  
13 report. I also -- yeah, that's an example, yeah.

14 Q And can I ask you to remind us again of the  
15 quantitative evidence that you relied on regarding the  
16 significance of first look?

17 A Yeah. That was the one that was in my original report  
18 from 2014. The win rate of AdX and DFP was 53 percent.  
19 That was in my original report.

20 Q So what conclusion do you draw from that about --  
21 sorry. Let me rephrase.

22 Earlier I was asking you why the existence of some  
23 work-arounds do not change your opinion about first look.  
24 And why is that?

25 A It's because when I looked at these other possible ways

1 of trying to use -- of working around AdX so-to-speak and  
2 getting ahead of it, none of them really seem to be  
3 effective as I cited in my rebuttal report, and, therefore,  
4 I didn't see that it substantially changed anything about  
5 the effectiveness of the waterfall and the first look  
6 advantage.

7 Q Let's turn -- or move forward in time a little bit.

8 What, if anything, did publishers do to try to  
9 overcome the downsides of first look?

10 A Header bidding was the main response of publishers  
11 starting around 2014/'15. Yeah.

12 Q And after the emergence of header bidding, what  
13 happened to first look?

14 A As publishers started trying to insert their header  
15 bids into DFP, which was still their publisher ad server,  
16 first look turned into what is characterized as last look.

17 Q Let's focus on last look.

18 At a high level, how did last look work?

19 A When a publisher sought header bids outside of DFP and  
20 had to insert it to deliver because AdX -- the particular  
21 way they had to insert it into DFP to be delivered, the  
22 typical way was to insert a line item which had the price at  
23 which they had procured the header bid. And the first  
24 position of AdX in the chain of events that got triggered  
25 gave AdX that header bid that the publisher has procured as

1 the floor price in that AdX auction.

2 Q So with the emergence of header bidding, what did first  
3 look turn into?

4 A So that's how -- since AdX now has that floor price,  
5 which is the best header bidding price, that first position,  
6 that first look advantage, now became a last look because  
7 you're now seeing it after all of the other header bidders  
8 have finished bidding and the result is announced.

9 Q And can you give an example of how last look would work  
10 in a particular auction?

11 A Sure. Like let's say we had a header bidding auction  
12 where the publisher has gone out and gotten an external  
13 header bid of \$1, when they tried to serve that add through  
14 DFP, that dollar would become the floor for an auction that  
15 would be triggered in AdX, and if AdX had at least one  
16 bidder who was willing to pay anything above that dollar,  
17 that impression would now go to the AdX winner and not the  
18 header bidder winner.

19 Q How did last look allow AdX to revise the price that  
20 the AdX bidder pays after seeing the highest other bid?

21 A So there are two ways in which this happened. One, and  
22 the simpler way, is when AdX gets this floor, this header  
23 bidding -- the best header bidding bid as the floor, just  
24 because AdX runs what's normally a second-price auction --  
25 and as we discussed earlier, the floor can sometimes tell



1 you what's the minimum price you are to pay. So if AdX had  
2 just a single bidder above that floor price, AdX would be  
3 able to win that same impression for exactly the same price  
4 as the header bidder was willing to pay. So instead of  
5 giving it to the header bidder, we would just give it to the  
6 AdX bidder at the floor price.

7 Of course if there was a second AdX bidder that  
8 was bidding even above the floor, that would be the price  
9 that AdX would pay just because of the mechanics of that  
10 second-price auction we were talking about.

11 So that's the first way of how AdX was able to use  
12 the last look advantage.

13 Q And what was the second way?

14 A The second way is a conduct that I also examined  
15 extensively, it's called sell-side Dynamic Revenue Sharing  
16 or sell-side DRS for short. And this was a conduct where  
17 this last look information was also particularly valuable.

18 Q Please turn to Demonstrative AC.

19 Can you explain what this demonstrative shows?

20 A Yes. This demonstrative shows that first advantage I  
21 was talking about of having the last look. We have a header  
22 bidder who has put in a winning bid of \$1. This is outside  
23 of the Google ecosystem. And then it comes into DFP as the  
24 floor price that's triggered in AdX. And in the third  
25 panel, you see the AdX auction with that price floor, AdX

1 only has three bidders, one of them is above the price floor  
2 of \$1, and by mechanics of the second-price auction, we, at  
3 DFP, gives that impression to AdX for the floor price of \$1,  
4 and that's what you see in the right-most panel.

5 Q You can set that aside.

6 Let's talk about how sell-side Dynamic Revenue  
7 Share or sell-side DRS interacted with last look.

8 And, first, can you just explain what sell-side  
9 DRS was?

10 A So a platform like AdX usually takes a revenue share or  
11 a take rate, normally 20 percent, and it usually takes this  
12 off of the bid that it gets before it sends that amount as  
13 an effective bid into the AdX auction.

14 So sell-side DRS -- sell-side because we are on  
15 the AdX side -- is a way where that take rate of 20 percent  
16 is varied dynamically -- that's the D -- on an  
17 impression-by-impression basis. So one impression might  
18 have a revenue share of just, say, 10 percent, and the next  
19 one might have a revenue share of 13 percent. So that's the  
20 dynamic revenue sharing.

21 Q And how did last look interact with sell-side DRS?

22 A Last look gave a floor price, which was the highest  
23 header bid that the publisher had gotten outside of the  
24 platform, as a target to meet or beat. So last look  
25 provided this target. And now sell-side Dynamic Revenue

1 Share -- because it was designed to adjust that 20 percent  
2 up and down -- would then be able to realize in some cases  
3 if I actually reduced my revenue share, I could meet that  
4 floor, so that way last look gave the informational  
5 advantage that can be exploited by sell-side Dynamic Revenue  
6 Sharing.

7 Q Would sell-side DRS always result in AdX lowering its  
8 take rate?

9 A In the very first version of sell-side DRS that I  
10 examined, that was the case, but Version 2 onwards, AdX  
11 sometimes also increased its take rate in addition to  
12 lowering it on some impressions.

13 Q Can we turn to Demonstrative AD.

14 Can you explain what this demonstrative shows?

15 A This is -- this is a demonstrative that shows two  
16 different impressions in the top and the bottom. In the  
17 first impression, and in both cases, we assume that we have  
18 the same highest header bidding bid of \$1. That's the AdX  
19 floor price on the left. So in the first impression on top,  
20 we have the highest bidder within AdX willing to pay \$1.10.  
21 That's in the middle panel.

22 Now, if you took away the 20 percent Dynamic --  
23 20 percent revenue share -- sorry, not dynamic, but the  
24 regular revenue share -- from the \$1.10, that would be  
25 22 cents. So the effective bid, or the net bid, would be

1 \$1.10 minus 22 cents, that's the 88 cents. But 88 cents is  
2 below the floor price of \$1. So, in this case, AdX would  
3 provide a discount, that is it would reduce the revenue  
4 share, and top up that effective bid from 88 cents to \$1.  
5 And, in that way, it would be able to win that impression,  
6 and that's what you see on the right panel.

7 Q And can you explain the bottom row that is in purple?

8 A So the bottom row is another impression. Here the  
9 highest bidder is willing to pay \$1.40. So \$1.40 times  
10 20 percent is 28 cents. So if you shave that off the top,  
11 you get a net rate of \$1.12. But \$1.12 is more than enough  
12 to clear the floor price of \$1, so, in this case, AdX might  
13 add a surcharge of 12 percent. In other words, it's  
14 increasing its revenue share so that it's able to recoup  
15 what it might have lost in terms of debt in the top  
16 impression.

17 Q You can set that demonstrative aside.

18 Please turn in your binder to PTX 542.

19 MR. VERNON: And just to potentially move this  
20 along, this was also mentioned in the stipulation.

21 MR. ISAACSON: I've now been apprised of the  
22 stipulation. It was that documents could be entered without  
23 a sponsoring witness --

24 THE COURT: Counsel, you need to be at the  
25 lectern.

1 MR. ISAACSON: -- but not that we were waiving our  
2 objections.

3 THE COURT: No, I want you at the lectern when  
4 you're speaking.

5 MR. ISAACSON: I'm sorry.

6 THE COURT: Yeah. All right.

7 MR. ISAACSON: My colleague has helpfully informed  
8 me that our stipulation was that these documents were in a  
9 group that could be admitted without a sponsoring witness  
10 and not that we were waiving our objections to these.

11 THE COURT: Right. So relevance or hearsay,  
12 whatever, were not waived in that stipulation.

13 MR. ISAACSON: Right. Right.

14 And you can see there's discussions of -- with  
15 someone from The Guardian in here. And I'm waiting for  
16 the --

17 MR. VERNON: May I respond, Your Honor?

18 The stipulation -- under the stipulation, Google  
19 agreed not to object on the grounds of both sponsoring  
20 witness, also hearsay, authenticity and foundation. If -- I  
21 think they did preserve their right to object to hearsay  
22 within hearsay.

23 MR. ISAACSON: Yes, we did.

24 MR. VERNON: If that's what my colleague is  
25 standing on, we aren't seeking to admit the hearsay within

1 hearsay.

2 MR. ISAACSON: Right.

3 THE COURT: Well, what portions of this avoid that  
4 problem?

5 MR. VERNON: We are focusing on the -- it's the  
6 bottom email in the first page from Mr. Pal, Martin Pal,  
7 P-A-L. And I'll allow counsel a minute to review it. But I  
8 don't think that that's the hearsay-within-hearsay problem.

9 MR. ISAACSON: Except what he's responding to is  
10 something that someone from The Guardian is saying.

11 MR. VERNON: Well, I think --

12 MR. ISAACSON: So it's my take is the main culprit  
13 is talking about something that The Guardian is talking  
14 about.

15 MR. VERNON: I think if he's responding to  
16 something that The Guardian said, then whatever The Guardian  
17 said wouldn't be relevant for the truth.

18 THE COURT: All right. We need to move this  
19 along.

20 542 I'm admitting only the last small paragraphs  
21 on the first page. So it's the email dated August 11, 2017  
22 at 7:56 a.m. All right. And I think -- does that go --  
23 does that go onto the other page? No. That's the only part  
24 of it you want?

25 MR. VERNON: Yeah. We were only focused on this

1 email from Mr. Pal.

2 MR. ISAACSON: I -- if we're going to do that, I  
3 would also like to admit the paragraph higher on the page  
4 that has "I" and then "think" with the little marks around  
5 it, whatever, the asterisks.

6 THE COURT: Well, we're not going to parse it that  
7 much. It's going to be the whole first page then if we're  
8 going to use it.

9 MR. ISAACSON: All right. That would be fine.

10 THE COURT: The whole first page, and only the  
11 first page, which is Bates Number 335 of this exhibit is in.

12 (Plaintiffs' Exhibit Number 542, Bates 335 admitted into  
13 evidence.)

14 MR. VERNON: Your Honor, do you want us to submit  
15 a redacted version of the last pages or submit it as is?

16 THE COURT: We'll just have to White Out the other  
17 side. It's a two-page ...

18 MR. VERNON: All right.

19 BY MR. VERNON:

20 Q So focused on Mr. Pal's email at the bottom of the  
21 first page, in particular, the second and third paragraphs,  
22 the second paragraph begins: "AdX to pay high"; do you see  
23 that?

24 A Yes, I do.

25 Q What does this language show about how last look

1 interacts with south side DRS?

2 A This is a specific example calling out exactly what I  
3 was describing a little bit earlier.

4 When the description says AdX gets to pay high and  
5 win whenever AppNexus is present with a high CPM, it's just  
6 saying that when it gets a high header bid, it's able to pay  
7 that high amount. This is in the context of Dynamic Revenue  
8 Sharing that we were just talking about. And it can pay low  
9 when it bids low. So, again, it's those two panels I was  
10 talking about. And the second sentence says that, in  
11 contrast, AppNexus -- which is the other exchange -- cannot  
12 reliably save money on the queries when AdX bids low.

13 Q And the next paragraph says: "This has fundamentally  
14 nothing to do with Dynamic Rev Share. Dynamic Rev Share is  
15 just yet another way for AdX to exploit the last look  
16 advantage."

17 What does that show with respect to the  
18 interaction between DRS and last look?

19 A Dynamic Revenue Share is another way for AdX to exploit  
20 the last look advantage. That's the summary of the second  
21 look advantage of last look.

22 Q You can set that aside.

23 Turning back to last look, what affect does last  
24 look have on publishers' revenue?

25 A It doesn't give them the highest revenue possible. So



1 it reduces the revenue.

2 Q And why is that?

3 A It's because essentially last look takes the auction  
4 pressure off of AdX because it is given the very highest  
5 price it has to beat from the other header bidders, and AdX  
6 just has to beat that floor for it to get that impression  
7 from the other header bidders. So that's why the revenue  
8 would be lower than if all of them went together.

9 Q And how does last look affect whether the advertiser  
10 that values the impression the highest actually ends up  
11 winning it?

12 A Well, it doesn't allow this possibility sometimes,  
13 because, yeah, it -- it's the same inefficiency. If the  
14 publisher is not making the highest money, that means the  
15 person who is willing to pay the highest is also not getting  
16 that impression.

17 Q And how does the last look affect exchanges?

18 A Well, last look, in particular, still survey the header  
19 bids that the other exchanges sometimes solicit. And  
20 because of this second advantage, it reduces the amount of  
21 impressions they are able to win.

22 Q Let's turn to Project Poirot and bid shading.

23 And I think first just as a background, can you  
24 explain what bid -- I'll let you drink a cup of water.

25 Can you explain what bid shading is?

1 A Bid shading is a bidding strategy whereby the bidder  
2 doesn't put in their whole value or the so-called true value  
3 for the impression, but, instead, shades it down a little  
4 bit.

5 Q And in what auction formats does a buyer typically bid  
6 shade?

7 A Typically in first-price auction, it's a reasonable  
8 strategy to bid shade.

9 Q And why would an advertiser bid shade or just a buyer  
10 bid shade in a first-price auction?

11 A If a buyer does not bid shade in a first-price auction  
12 and she wins that impression, she pays what she values the  
13 impression at, and so she would not have any what's  
14 typically called surplus or savings from having participated  
15 in this transaction. So it makes logical sense to go a bit  
16 below your value, and then when you win, you accrue that  
17 difference as the savings for having participated in the  
18 auction.

19 Q And does a buyer --

20 THE COURT: Sorry. One's bidding against oneself  
21 in that?

22 THE WITNESS: No. This is not that.

23 THE COURT: You don't think so?

24 THE WITNESS: No. This is not that.

25 This is if someone is trying to win something for

1 a certain price --

2 THE COURT: And I don't -- I don't offer the full  
3 amount.

4 THE WITNESS: Right.

5 THE COURT: Right.

6 THE WITNESS: Right.

7 THE COURT: Okay.

8 THE WITNESS: Right.

9 THE COURT: If I were to offer the full amount, I  
10 might be bidding against myself in the sense that I wanted  
11 to try to pay a lower price.

12 THE WITNESS: I wouldn't characterize it that way,  
13 Your Honor.

14 Usually when bidding against yourself is raised,  
15 it's usually the possibility of your own bid showing up from  
16 two different channels. So, in other words, the price that  
17 you're bidding against is your own price coming through some  
18 other channel. This is something I would simply say is,  
19 yeah, just trying to make some savings for yourself.

20 THE COURT: But all these biddings we're talking  
21 about so far, I'm thinking about a standard auction, not the  
22 auctions involved here, many times bidders get a chance to  
23 rebid. You get to see what everybody's bids are, and if you  
24 really want the item, you can up your bid. And that doesn't  
25 happen in this system; does it?

1 THE WITNESS: This is not that auction. You get  
2 only one shot.

3 THE COURT: In your review of these -- because,  
4 again, you talk about optimization.

5 In your review of this whole industry, is there  
6 any place that you saw where, in fact, that kind of what I  
7 would call dynamic bidding or multiple bidding goes on? Are  
8 there any auctions where that is permitted?

9 THE WITNESS: Not for the same impression.

10 THE COURT: Is that because of the latency issues?  
11 In other words, this has to still, at some point, result in  
12 an immediate impression showing up; yes?

13 THE WITNESS: Yes. That's probably primarily the  
14 reason.

15 And we have seen, for example, when you're going  
16 through a waterfall, you have to time out at some point  
17 because you have to render that page.

18 THE COURT: But if technology got better and  
19 faster, one could have that type of a more dynamic auction  
20 environment.

21 THE WITNESS: That is likely, but the speed of  
22 light is an impediment, I guess.

23 THE COURT: Okay. All right. Thank you.

24 BY MR. VERNON:

25 Q Okay. For bid shading, would a buyer normally bid

1 shade in a "clean" second-price auction?

2 A In a second-price auction, it doesn't make sense to bid  
3 shade.

4 Q And can you explain why?

5 A Yeah. So this is interesting. In a second-price  
6 auction, if you bid shade -- let's just take an example.  
7 Let's say you value something at \$5 and the next highest  
8 bidder is at \$3. Let's say you bid shade to \$4, you still  
9 win, but your bid shading has no consequence on what price  
10 you want that impression for. You still pay the same \$3.  
11 So bid shading doesn't affect how much you pay.

12 On the other hand, if there was somebody who was  
13 willing to pay, say, \$4.50 and they were in this set of  
14 bidders, then you actually lost what you might have wanted  
15 for \$4.50 because you still value it at \$5.

16 So that's the reason why you would not want to bid  
17 shade. You potentially might lose that auction, and there's  
18 absolutely no gains in trying to shade your bid in terms of  
19 actually winning the auction or setting the price. So bid  
20 shading would -- I mean, you can formally prove that bid  
21 shading would not be the logical rational thing to do in  
22 second-price auctions.

23 BY MR. VERNON:

24 Q Okay. So with that as a background, let's turn to  
25 Project Poirot.

1 And just at a high level, what was Project Poirot?

2 A Project Poirot was a bid-shading program employed by  
3 DV360 -- that's Google's DSP -- when it was bidding into  
4 third-party exchanges that's non-AdX.

5 Q Under Project Poirot, prior to the end of 2019, did  
6 DV360 bid shade on AdX?

7 A No. DV360 did not bid shade into AdX until 2019.  
8 Yeah.

9 Q And do you recall approximately when Project Poirot was  
10 first implemented?

11 A It should be around 2016 or so, if my memory serves me  
12 well.

13 Q How did DV360 not bid shading on AdX affect  
14 advertisers?

15 A There's a potential surplus that advertisers could have  
16 gained if Poirot did bid shade on AdX as well.

17 Q And can you explain what you meant by there was a  
18 potential surplus that advertisers could have gained?

19 A So, again, recall that if you're facing an auction that  
20 is not -- that's running a first-price auction, it's a  
21 reasonable strategy to try and bid a little bit lower. And  
22 this potential savings that an advertiser could have gained  
23 was because there were some of the time when AdX was acting  
24 like a first-price auction. So there was some set of  
25 impressions when AdX had optimization features that would

1 have made AdX look like a first-price auction. So in those  
2 auctions, it would be rational to save something for the  
3 advertisers by bid shading on AdX.

4 Q And can you give an example of one of those features  
5 that made AdX somewhat like a first-price auction at that  
6 time?

7 A So, broadly speaking, there are two features in AdX  
8 that make it not a second-price auction. One is what we  
9 were just discussing a little while ago, that is the Dynamic  
10 Revenue Sharing. And so if you are subject to Dynamic  
11 Revenue Sharing and you're a bidder, you pay what you bid  
12 for part of the time. So that makes it not like a  
13 second-price auction; more like a first-price auction.

14 There's a second one, and the second optimization  
15 feature in DFP and AdX that makes it not like a second-price  
16 auction is something called reserve price optimization or  
17 RPO.

18 Q Can you explain just at a high level what reserve price  
19 optimization or RPO is?

20 A Reserve price optimization is a feature in AdX, I  
21 believe, or DFP, I'm not exactly sure, that allows  
22 publishers to set their floor prices or reserve prices  
23 optimally. And the way it works is that if it finds that,  
24 for certain impressions, the historical bids have been high  
25 for a particular buyer, then it would automatically try and

1 increase that reserve price for that particular buyer so  
2 that they can try to maintain that high price.

3 On the other hand, if there was a buyer who was  
4 historically submitting lower bids, right, it would not  
5 be -- it would not be able to raise that reserve price. So  
6 it's just a way of trying to set the reserve prices for  
7 different buyers differently based on their historical  
8 patterns. That's how reserve price optimization worked.

9 Q And why did reserve price optimization mean that AdX  
10 was operating at least somewhat like a first-price auction  
11 at this time?

12 A Well, it's intuitive to see, because if you  
13 consistently bid high over time, you know that your  
14 historical bids are going to eventually set your floor. So  
15 there is -- it is in my best interest not to always bid high  
16 knowing that I'm subject to this floor that's creeping up on  
17 me.

18 Q And let's take one step backwards.

19 You mentioned sell-side DRS. At this time, at  
20 least prior to the existence of truthful DRS, which we won't  
21 get into right now, did sell-side DRS apply to DV360?

22 A One of the things I found in my source code analysis  
23 was that sell-side DRS was turned off inside AdX for bids  
24 coming from DV360.

25 Q And what about RPO? Was RPO applied to bids coming



1 from DV360?

2 A RPO continued to be effective on the bids coming from  
3 DV360.

4 Q Let's turn to Demonstrative AE.

5 Can you explain what this demonstrative shows?

6 A This demonstrative is putting in some numbers for the  
7 effect I was trying to describe a little earlier of RPO. We  
8 have an impression that -- a type of impression for which we  
9 have two bidders, advertisers. The left panel is an  
10 advertiser who has historically bid high, and the right  
11 panel is the one who has historically bid low.

12 The publisher sets a floor of \$1, and what RPO  
13 does is overrides it. That's the strike through. And you  
14 see that it overrides it with a higher reserve price of \$3  
15 for the historically higher bidder, and only \$2 for --  
16 sorry, it's -- I'm getting ahead of myself. The second row  
17 is actually the historical average bid of the two types of  
18 buyers. So that's \$3 and \$2 respectively. So in the third  
19 row, you see that the \$1 floor has been overridden, and it's  
20 now replaced with \$2 for the high bidder and \$1.50 for the  
21 low historical bidder.

22 And so you see that the minimum price for these  
23 two different advertisers to win the same impression is now  
24 differentiated by this sell price optimization feature.

25 Q And can you explain using this demonstrative how UPR

1 gives an incentive for a buyer to bid shade when RPO exists?

2 A So if I were the left buyer and I knew that RPO was in  
3 effect, then it does make sense for me, from time to time,  
4 to not keep submitting these high historical average bids,  
5 because I know that they would eventually set the \$2 floor  
6 that RPO comes up with.

7 Q You can set that aside, and let's turn back to Poirot.

8 What impact, if any, did Poirot have on exchanges  
9 other than AdX?

10 A The exchanges on which Poirot was effective on, the  
11 ones on which the bids were being lowered, they introduced  
12 the ability of those exchanges to transact more impressions.

13 Q I'm sorry. Can you repeat that? What impact, if any,  
14 did Poirot have on exchanges other than AdX?

15 A It reduced the scale of transactions that they were  
16 able to -- they were able to transact.

17 Q Did you say reduced or introduced?

18 A So when Poirot was acting on third-party exchanges, it  
19 reduced -- it shades the bid on them. Right. So that means  
20 that the bids that they are facing are lower priced. So  
21 that means they were able to win less of those transactions.  
22 But Poirot was not acting on AdX relatively, so the bids  
23 that went into AdX were higher, they were not shaded. So  
24 they sometimes they even transferred some of the wins from  
25 these third-party exchanges to AdX.

1 Q Now let's move to UPR.

2 Just very briefly, what is UPR?

3 A UPR is the Unified or Uniform Pricing Rules that was  
4 bundled with the Unified First Price Auction in 2019. And  
5 UPR refers to DFP not letting the publishers set different  
6 floor prices for different exchanges and buyers with the  
7 advent of this Unified First Price Auction.

8 Q What impact did UPR have on a publisher's ability to  
9 set a floor higher for AdX than for other exchanges?

10 A UPR essentially took away the ability of a publisher to  
11 floor AdX higher and the other exchanges lower.

12 Q And why would a publisher have an incentive to set a  
13 higher floor for AdX than for other exchanges?

14 A There could be several reasons for publishers wanting  
15 to control the floor prices. I cite at least three. I  
16 believe one is the natural concern of diversifying revenue  
17 away from Google into other channels. Another one could be  
18 to try and use the price floor as a control to not allow low  
19 priced advertisements which may be low quality, you know,  
20 the spam, those kinds of ads.

21 And then yet another issue with -- yet another  
22 control that the publishers can exercise with setting  
23 different floor prices could just be, you know, contracts  
24 that they may have with a particular -- particular  
25 exchanges. So if they transacted more volume, they might

1 get a lower take rate, things like that.

2 Q What impact did UPR have on exchanges other than AdX?

3 A It essentially moved some of the impressions that were  
4 won by these other exchanges to AdX because UPR reduced the  
5 floors for AdX, and sometimes thereby allowed AdX to win  
6 over some of those impressions.

7 MR. VERNON: Let me turn to PTX 705. And to try  
8 to streamline this slightly, this is not in the sponsoring  
9 stip, but it is on defendant's exhibit list at DTX 661, and  
10 it is something Professor Ravi relied upon in his report.

11 THE COURT: It's hard to object to your exhibit.

12 MR. ISAACSON: I've always found that a difficult  
13 thing to do. So no objection.

14 THE COURT: It's in. 705 is in.

15 (Defense Exhibit Number 705 admitted into evidence.)

16 MR. VERNON: Can we turn to the page ending in  
17 085. And if we could focus on the smaller chart on the left  
18 side. It's kind of got a tree-like graphic.

19 BY MR. VERNON:

20 Q What does this chart show?

21 A This chart shows the -- an analysis of the queries that  
22 were won by AdX as a result of floors. So let's make sure  
23 we understand this carefully.

24 On the left side of that topmost branch, you see  
25 that header bidders won 34 percent of the queries that were

1 eligible. Thank you. And then proceeding down that branch,  
2 we see that among that 34 percent, 42 percent, that's  
3 already in the red box, were queries where AdX floor price  
4 was higher than the price for which it was sold.

5 So some header bidder won all of these queries,  
6 not the same header bidder, but a header bidder won all of  
7 these queries, and in 42 percent of that 34 percent, AdX  
8 floor was higher than the price that the header bidder won  
9 it for. Right.

10 And then moving further down, you see that in  
11 40 percent of that 42 percent -- it's getting complicated --  
12 we see that the AdX actually had a bidder who was willing to  
13 pay more than the winning price.

14 So just to sum it up, in 40 percent of 40 [sic]  
15 percent, so roughly about 16 percent of all of these  
16 queries, AdX had someone who was willing to pay higher than  
17 the highest header bidder but was floored away.

18 Q And what does this 40 plus, 42 percent, or roughly  
19 16 percent, number show about the potential effects of UPR?

20 A So if UPR had driven down the floor of AdX so that it  
21 would have been able to submit its bid in that 16 percent,  
22 it would have won all of those 16 percent of the  
23 impressions.

24 Q You can set that aside.

25 Did you review any other evidence -- quantitative

1 evidence relating to the effects of UPR?

2 A I have a couple other references to such quantitative  
3 evidence. I remember one from I believe another exchange,  
4 it might have been Rubicon, where they noticed right after  
5 this UPR was introduced that there -- their winning rate  
6 went down from 30 to 24 percent. So there are some other  
7 documents that I cite about the similar effect of UPR.

8 Q And just for completeness, other than the Rubicon and  
9 this tree chart that we just cited, was there any other  
10 evidence in your report about the quantitative size of the  
11 effects of UPR on other exchanges?

12 A There may have been some. I don't completely remember.

13 Q And I don't want to test your memory completely, but  
14 just do you remember for that other evidence, were the  
15 effects smaller or higher than the 16 percent?

16 A They're probably typically smaller.

17 Q Let's talk briefly about scale.

18 What conclusions have you drawn about the  
19 importance of scale for exchanges?

20 A So let me first clarify what I mean by scale. There  
21 are two aspects of scale in the display ads market. One is  
22 the number of participants that are in a particular product.  
23 We think of that as the thickness of the market. And the  
24 second is the number of transactions that are won by a  
25 particular product, and that's what you might think of as a

1 traffic scale.

2           So I broadly concluded that scale is quite  
3 critical for these ad tech products to be successful, and  
4 that's because scale provides them with data that is the  
5 fodder for optimization, which, in turn, is the way in which  
6 the different quality features of these products are  
7 implemented.

8 Q     When you conclude that scale is important for  
9 exchanges' optimization, how does your own expertise inform  
10 that conclusion?

11 A     A lot of my work has to do with trying to find the  
12 effect of -- the improved effectiveness of an algorithm with  
13 increasing data or higher scale. So that's how it's  
14 relevant.

15 Q     And in your analysis of scale, did you analyze the  
16 scale of Google's rivals?

17 A     I mainly focused on Google in my analysis, but I did  
18 come across some other documents and evidence that sometimes  
19 talk about effects on rivals.

20 Q     Let's walk through one example showing how scale  
21 impacts these optimization algorithms.

22           Earlier we discussed how exchanges can vary their  
23 take rates for different impressions; do you remember that?

24 A     Yes. The sell-side DRS.

25 Q     Can you explain how -- and sell-side DRS was a Google

1 program?

2 A Yes. This was a Google program by AdX that changed  
3 those take rates from 20 percent up and down. It's that  
4 conduct.

5 Q Can you explain how sell-side DRS's debt recoupment  
6 system worked?

7 A So it was in that demonstrative. We can go back to it  
8 if needed.

9 This was an example where, in one of these  
10 impressions, AdX would provide a discount. So that meant it  
11 wouldn't take the whole 30 percent take rate; it would take  
12 something smaller. So when that happened, a nominal debt  
13 was incurred. So that would be like a virtual debt. And  
14 then there would be an account keeping track of that debt.  
15 And when another impression like a second one came along,  
16 AdX would increase the take rate, and thereby, you know,  
17 take back that debt. So there was this system keeping track  
18 of virtual debts that were due to AdX and would recoup them  
19 over time.

20 Q And how, if at all, does scale affect Google's ability  
21 to run sell-side DRS?

22 A A scale is crucial for being able to recoup all the  
23 debt because, you know, you have to have sufficient volume  
24 of transactions so you're provided the opportunity to  
25 recover back that debt at a later auction where you had that



1 margin to collect back the debt.

2 Q Did Google run any experiments showing how greater  
3 scale affects DRS?

4 A Yes. There are documents associated with the  
5 performance of different versions of DRS. And I remember  
6 one of them that I cite in my report where, for example, if  
7 you ran an experiment on Version 2 of that sell-side DRS,  
8 the increase in profit was something like 3.6 percent. But  
9 when you scaled up that same experiment to 25 percent from  
10 5 percent, then the effect on the profit doubled roughly to  
11 7 percent. So that's an example where, as you increase  
12 scale, the effectiveness of the conduct or the optimization  
13 conduct improves.

14 Q Let me ask you to explain one portion of that slightly.  
15 You mentioned a 5 percent and a 25 percent and a  
16 scaling up?

17 A Yes.

18 Q Can you just explain what you were describing there.

19 A Sure. When you try to implement an optimization  
20 algorithm, you have to experiment with small slices of the  
21 traffic to see how it would perform when it was fully  
22 deployed.

23 So the 5 percent would be the size of the traffic  
24 in which one of the experiments was run, and that recorded a  
25 profit of 3.6 percent, let's say. And then they would scale

1 it up to 25 percent, so they're now running it in fivefold  
2 higher traffic. And now they find that the profit number  
3 they were tracking has doubled to 7 percent. So that's what  
4 I mean when I say as you make the scale higher, typically  
5 the effects that you expect from these optimization conducts  
6 get better.

7 Q And what is truthful DRS?

8 A Truthful DRS was the very last version of this DRS  
9 conduct, and it's called so because it was more -- it was  
10 designed as to appear like a truthful -- appear -- make AdX  
11 appear like a truthful auction.

12 In a sense, truthful DRS did not -- did something  
13 different than the earlier versions in that it would use  
14 machine learning to try and figure out whether on a  
15 particular impression it should take a 0 percent take rate  
16 or a 20 percent take rate. And if it determined that it  
17 could still win with a 20 percent take rate, it would take  
18 that, otherwise it would knock it down to 0 percent, and,  
19 you know, put the full bid in. And so that was the last  
20 version of DRS.

21 Q Did Google run any experiments showing how scale  
22 affected this truthful DRS?

23 A Yes. Truthful DRS relies even more on scale because of  
24 this prediction or machine learning element. So that  
25 requires even more data. And so one of the experiments that

1 I viewed and cited talks about the initial experiment with  
2 truthful DRS actually causing something like a 1.6 percent  
3 reduction in the profit. But then there's a discussion that  
4 says once you scale it up, that reduction will go away and  
5 we'll be able to recoup back that debt according to these  
6 adjustments we were talking about earlier. So that's  
7 another example where scale was useful in being able to  
8 deploy it.

9 Q Let's step back a little bit.

10 Just overall for the four conducts that we've  
11 discussed, first look, last look, UPR and Poirot, how did  
12 these conducts affect the scale of exchanges other than AdX?

13 A So, overall, these four conducts reduced the scale of  
14 other exchanges in AdX because they were mainly, as I was  
15 describing earlier, trying to increase the transactions  
16 going through AdX.

17 Q And how would that reduction in scale affect those  
18 other exchanges?

19 A So reduction in the traffic that these other exchanges  
20 were able to see and win would, as you were saying before,  
21 reduce their ability to do optimizations. And these  
22 optimizations helped them do things like pricing, targeting,  
23 and even more experimentation better. So this reduction in  
24 scale that they see would affect their ability to keep and  
25 improve the quality of their products over time.

1 Q When did first look end?

2 A First look, it didn't really end, it started becoming  
3 less relevant after the popularity of header bidding, and  
4 that would have been around 2015 or so.

5 Q And when did last look end?

6 A So last look would have started around 2015. It's that  
7 same positional advantage. And that positional advantage  
8 ended with the universal first-price auction September 2019,  
9 I believe.

10 Q And we discussed before how, for a time period, DV360  
11 did not bid shade on AdX; do you remember that?

12 A Yes. Up until 2019.

13 Q And during what time period did UPR apply?

14 A UPR applied with the beginning of the universal  
15 first-price auction. So from 2019.

16 Q And there's one thing that we haven't talked about yet  
17 on your direct, Google Ad's exclusivity on to AdX.

18 Can you explain that in just one sentence?

19 A That just refers to the mere exclusive availability of  
20 the demand from Google Ads in the AdX platform.

21 Q And how does Google Ad's exclusivity into AdX affect  
22 the scale of other exchanges, meaning exchanges other than  
23 AdX?

24 A Well, they just don't have access to that demand. So  
25 that means their scale is reduced as a result.

1 Q And during what time period did that exclusivity apply?

2 A That exclusivity has continued pretty much all along.

3 Q How would conducts that ended in the past, like last  
4 look, as an example, affect rivals today?

5 A As I was explaining a little earlier, the reduction of  
6 scale at one point of time would inhibit the ability of that  
7 exchange to be able to do all these quality improvements  
8 with optimization. And so over time, that would be  
9 reflected in that exchange attracting fewer advertisers and  
10 publishers to transact through them.

11 We now have another feedback loop here. This is  
12 because an exchange is -- has the so-called indirect network  
13 effects at work here. So that simply means if I have fewer  
14 people on one side of this platform, like the publishers,  
15 that would want -- that would attract fewer advertisers to  
16 join it, and vice versa, fewer advertisers means fewer  
17 publishers.

18 So this reduction in quality over time would also  
19 reduce the number, the thickness of these exchanges, so they  
20 would continue to impact how these exchanges are able to  
21 evolve and grow up until now.

22 Q So I think we've talked about first look, last look,  
23 UPR and Poirot.

24 Overall, how would you assess these conducts from  
25 a discrete optimization perspective?

1 A So from an optimization point of view, these conducts  
2 were not well designed to optimally allocate these  
3 impressions on behalf of customers. And they also seem to  
4 have been designed to advantage Google's own products and  
5 the tech stack, particularly AdX, and also disadvantage the  
6 others as a consequence.

7 Q And let me just ask you one question.

8 A minute ago when we were talking about scale, you  
9 used the word thickness.

10 A Yes.

11 Q Can you just explain briefly what that means.

12 A Thickness is the number of participants in a product.  
13 So in AdX, the thickness would be the number of publishers  
14 that are transacting through AdX and the number of  
15 advertisers. That would be the thickness scale. Yep.

16 Q Thank you.

17 MR. VERNON: Your Honor, we are done with our  
18 direct but have one housekeeping matter relating to moving  
19 in documents.

20 THE COURT: All right. Let's hear it.

21 MR. VERNON: So there are two documents -- and I  
22 can get to each of them -- that we would like to move into  
23 evidence as related to Professor Ravi's testimony,  
24 specifically about sell-side DRS. They're both documents he  
25 cited in his report.

1           The first one is subject to the stipulation; the  
2           second one is not. They're 697 and 1040. They are  
3           documents that help describe how sell-side DRS works, and so  
4           we would just, in the interest of efficiency, move them in  
5           so we can cite them in any findings that we later do.

6           THE COURT: All right. So 1040 is the first one;  
7           right? It's dynamic sell-side rev share on AdX.

8           MR. ISAACSON: You'll see, Your Honor, on 1040  
9           there's all these comments from unknown people similar to  
10          the document.

11          MR. VERNON: So the comments are -- if it's a  
12          Google document, the comments are likely by Google  
13          employees.

14          MR. ISAACSON: Well, your colleague objected to a  
15          Google document with Google comments from unknown Google  
16          employees.

17          MR. VERNON: That's different. That's a party --

18          THE COURT: Do we really need these? Is it not  
19          clear enough?

20          MR. VERNON: I think we are mostly not focused on  
21          the comments, Your Honor. These are design documents that  
22          explain how sell-side DRS works. It's not particularly  
23          exciting; it's kind of going through what Professor Ravi  
24          said about the take rate goes up, the take rate goes down,  
25          that sort of stuff. That's what we're going for.

1 MR. ISAACSON: I think they can --

2 THE COURT: Wait a minute. Just a second.

3 I mean, it's clear the comments are coming from  
4 somebody at Google because we see the names; right? And we  
5 see cell phone numbers, Google New York.

6 MR. VERNON: Yeah. And we would add, Your Honor,  
7 that when we are seeking to admit these documents, they are  
8 party admissions, which that's a one-way thing.

9 THE COURT: Yeah, I think that's correct.

10 MR. ISAACSON: Well, you have to be a certain  
11 level to be a party admission, and when you're unidentified  
12 people, that's not a party -- even within a company, that's  
13 not a party admission.

14 MR. VERNON: That's not my understanding of the  
15 standard. I think the standard is it has to be employees  
16 who are working on something within the scope of their  
17 employment. It is likely that the employees that are  
18 commenting on a sell-side DRS design document was doing so  
19 because that was part of their employment.

20 Again, we don't want to overstate the haughtiness  
21 of this document. It is simply a design document describing  
22 how sell-side DRS works.

23 THE COURT: I'm going to permit it in and let you  
24 take out the comments. That's easy. You can just black  
25 that out.



1 MR. VERNON: All right.

2 THE COURT: So Plaintiffs' Exhibit 1040 is in with  
3 all of the little comments redacted.

4 (Plaintiffs' Exhibit Number **1040** admitted into evidence.)

5 MR. VERNON: And does the same apply to 697?

6 THE COURT: Hold on one second. I have to find it  
7 first.

8 MR. VERNON: Your Honor, they're organized by  
9 number.

10 THE COURT: Yeah. I've got it. 697.

11 MR. ISAACSON: We have no objection to 697.  
12 There's a comment --

13 MR. VERNON: I see the comment, maybe a couple  
14 comments.

15 THE COURT: Same issue with the comment?

16 MR. ISAACSON: Yes.

17 MR. VERNON: That's fine.

18 THE COURT: 697 is also in as redacted.

19 MR. VERNON: Your Honor, I've been informed 697 is  
20 covered by the stip.

21 Does that allow us to also get the comments?

22 THE COURT: Well, I'm assuming it was reviewed  
23 before there was a stipulation, so it will come in then as  
24 it is. All right. Without redactions.

25 (Plaintiffs' Exhibit Number **697** admitted into evidence.)

1 MR. VERNON: Okay.

2 MR. ISAACSON: And I don't care for this document,  
3 Your Honor, it's just one comment.

4 But just to be clear, the stipulation --

5 THE COURT: At the lectern.

6 MR. ISAACSON: The stipulation is that documents  
7 can come in without a custodian, but objections were  
8 reserved.

9 THE COURT: No. We've just been through that.  
10 Ms. Wood said that's not it.

11 MR. ISAACSON: Certain objections have been  
12 preserved, and some haven't. And I'm not -- I'm just  
13 informing you this for the future. I don't care about this  
14 comment. It can come in with the comment. But in case it  
15 comes up for future documents, I wanted you to know that.

16 THE COURT: Well then we'll need to have those  
17 stipulations ready. You have it there? All right. Let's  
18 look at it.

19 MR. VERNON: Yes, Your Honor.

20 So the stipulation goes through -- it's ECF 1276  
21 from August 26th. We do list certain objections that Google  
22 had agreed to waive and others they did not. The ones they  
23 waived are described in the first paragraph.

24 THE COURT: All right. I don't want to spend time  
25 on this now. Just as the exhibits come along, if there's an

1 objection, we'll have to hear it at that point; all right?

2 MR. VERNON: Yes, Your Honor.

3 THE COURT: All right. So we've completed the  
4 direct examination. It is now 1:00, so this is a good time  
5 to take the break.

6 Professor, you'll need to be back here in your  
7 seat by 2:00. We'll give you a card so that you can get  
8 through the line a little bit faster. Make sure you give it  
9 back to the court security officer when you come back.

10 Anything further? No. All right. We're on  
11 recess.

12 (Court recessed for lunch at 12:58 p.m.)

13 -----  
14 I certify that the foregoing is a true and accurate  
15 transcription of my stenographic notes.

16  
17 Stephanie Austin

18 Stephanie M. Austin, RPR, CRR

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